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ABSTRACT

The Intergovernmental Oceanographic Commission (IOC) functions within the United Nations Educational, Scientific, and Cultural Organization (Unesco) to promote scientific investigation into the nature and resources of the world's oceans. Summarized in this report are discussions that took place in both preparatory meetings and plenary sessions of the eleventh session of the IOC Assembly, which was held during October and November, 1979. Topics addressed at this meeting included global atmospheric research, marine pollution, regional ocean science programs, monitoring services, data exchange, and training and education in the marine sciences. Appended are abstracts of lectures related to the theme "Marine Environment and Resources in the Ocean." Also among the appended materials are the 39 resolutions adopted at this conference. (WB)

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Intergovernmental Oceanographic Commission

Summary Report

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Eleventh session of the Assembly

including resolutions from the tenth and eleventh sessions of the Executive Council

Paris, 15 October - 3 November 1979

SE 033 005

SC/MD/65
Paris, 1980

Unesco

OCT 14 1980

The functions of the Commission are to:

(a) define those problems the solution of which requires international co-operation in the field of scientific investigation of the oceans and review the results of such investigation;

(b) develop, recommend and co-ordinate international programmes for scientific investigation of the oceans and related services which call for concerted action by its members;

(c) develop, recommend and co-ordinate with interested international organizations, international programmes for scientific investigation of the oceans and related services which call for concerted action with interested organizations;

(d) make recommendations to international organizations concerning activities of such organizations which relate to the Commission's programme;

(e) promote and make recommendations for the exchange of oceanographic data and the publication and dissemination of results of scientific investigation of the oceans;

(f) make recommendations to strengthen education and training programmes in marine science and its technology;

(g) develop and make recommendations for assistance programmes in marine science and its technology;

(h) make recommendations and provide technical guidance as to the formulation and execution of the marine science programmes of the United Nations Educational, Scientific and Cultural Organization;

(i) promote freedom of scientific investigation of the oceans for the benefits of all mankind, taking into account all interests and rights of coastal countries concerning scientific research in the zones under their jurisdiction.

In carrying out its functions, the Commission is required to bear in mind the special needs and interests of developing countries including in particular the need to further the capabilities of these countries in marine science and technology.

Nothing in the above shall be construed as implying the expression of a position regarding the nature or extent of the jurisdiction of coastal States in general or of any coastal State in particular.

(Statutes, Article 2, November 1970)

In addition to the above, the Commission has a further function which is to act as an effective joint specialized mechanism operating on behalf of certain organizations of the United Nations system substantially concerned with oceanic programmes (United Nations, Unesco, FAO, WMO and IMCO), under an agreement developed by the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO).

PREAMBLE

"The purpose of the Commission is to promote scientific investigation with a view to learning more about the nature and resources of the oceans through the concerted action of its members." (Statutes, Article 1, paragraph 2.)

The Commission held the eleventh session of its Assembly in Unesco Headquarters in October/November 1979. Delegates from 8 Member States and representatives from 18 intergovernmental and non-governmental bodies attended.

This report contains a summary of the discussions which took place during the session both in Preparatory Meetings and in Plenary. The 39 resolutions which were adopted are given in full in Annex II.

During the session, the traditional Bruun Memorial Lectures were presented; this year the theme followed was "Marine Environment and Resources in the Ocean". Abstracts are given in Annex VI. The full lectures will be published in the IOC Technical Series.

For convenience, the resolutions adopted at the tenth session of the Executive Council, FAO headquarters, Rome, 19-23 June 1978, and at its eleventh session, Mexico City, 28 February - 3 March 1979, will be found at the back of this volume. No resolutions were adopted at the twelfth session of the Executive Council.

During the period covered by this report, i.e. from the end of the tenth session of the Assembly (11 November 1977) until the end of the eleventh session of the Assembly (3 November 1979), including the tenth, eleventh and twelfth sessions of the Executive Council:

(a) the following served as Officers of the Commission:

Chairman: Dr. A. Ayala-Castañares (Mexico)

First Vice-Chairman: Dr. N.J. Campbell (Canada)

Second Vice-Chairman: Dr. C. Druet (Poland)

Third Vice-Chairman: Mr. O.-J. Østvedt (Norway)

Fourth Vice-Chairman: Capitán de Navío G. Angel Mejía (Colombia)

Past Chairman: Dr. G.F. Humphrey

(b) the following served as State-Member Representatives on the Executive Council:

Ing. F. Vila	Argentina
Mr. D. Rochford	Australia
Rear-Admiral L.C. de Freitas	Brazil
Dr. A.R. Bayoumi	Egypt
Miss M.-A. Martin-Sané	France
Prof. Dr. H.U. Roll	Germany (Federal Republic of)
Dr. S.Z. Qasim	India
Dr. N.N. Al-Shawi (replaced by Dr. Hatif Al-Galil - August 1978)	Iraq
Prof. Dr. N. Nasu	Japan
Mr. P.N. Kamande	Kenya
Mr. E.O. Bayagbona	Nigeria
Prof. I.A. Ronquillo	Philippines
Mr. M'Baye-Ba	Senegal
Mr. Mohammed Ben Hadj Ali	Tunisia
Dr. E.I. Tolstikov	Union of Soviet Socialist Republics
Dr. P.F.G. Twinn	United Kingdom
Mr. D.H. Wallace (replaced by Dr. Ferris Webster - January 1979)	United States of America
Dr. J.A. Galavis Seidel	Venezuela

A list of the new Officers of the Commission and State-Member Representatives on the Executive Council, who will serve until the end of the twelfth session (April 1982), is given in Annex IV to this report.

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SUMMARY REPORT

PREPARATORY MEETINGS

A.1 OPENING OF THE SESSION

References: documents SC/MD/60, item 15; IOC/EC-XI/3, item 9

The Chairman, Dr. A. Ayala-Castañares, opened the preparatory meetings of the eleventh session of the IOC Assembly at 10.00 a.m. on Monday, 15 October 1979 in Unesco Headquarters, Paris. 1

He recalled that at its tenth session the Assembly had requested the Secretary to investigate the feasibility of the Session Committee meetings being held as preparatory meetings in advance of the formal Plenary Sessions (document SC/MD/60, item 15). The Secretary had reported favourably on the proposal and had submitted a timetable to the Executive Council which had been approved (document IOC/EC-XI/3, item 9). 2

He pointed out that there was a twofold purpose in this new arrangement: (i) it permitted the timetable to be adhered to much more rigidly, thus reducing the time wasted by scientists waiting for their item of interest to come up for discussion; and (ii) it allowed ample time for the reports of the committees to be drafted and translated before submission to Plenary for approval. 3

A.2 ADMINISTRATIVE ARRANGEMENTS FOR THE SESSION

2.1 Adoption of the agenda

References: documents IOC-XI/1 prov. and 1 prov. Corr., IOC-XI/2

The agenda was adopted with the addition of one new item (4.8), proposed by the delegate of the United States of America (see Annex I - section A only). 4

2.2 Formation of Committees; appointment of Chairmen and Rapporteurs

Reference: document IOC-XI/1 Add. prov.

The proposals of the Chairman were approved, as follows: 5

C.I	Ocean Science	Mr. O.-J. Østvedt	-
C.II	Ocean Services	Prof. Dr. C. Druet	Mr. O. Sweeney
C.III	Training, Education and Mutual Assistance in the marine sciences (TEMA)	Capt. de Navío G. Angel Mejía	Prof. U. Lie
C.IV	Guidelines for the Structure and Responsibilities of the Subsidiary Bodies of the Commission	Prof. Dr. H.U. Roll	Mr. L.B. Brown

2.3 Documentation; timetable

References: documents IOC-XI/1 Add. prov., IOC-XI/4 prov.

The Secretary introduced the documentation and proposed timetable for the four committees. In doing so, he noted that a number of additional 6

Working Papers which were not listed in document IOC-XI/4 prov., would be introduced in each Committee by the Assistant Secretary responsible.

A.3 OCEAN SCIENCE - GLOBAL PROGRAMMES

A.4 OCEAN SCIENCE - REGIONAL PROGRAMMES

7 Committee I completed its work in ten (half-day) sessions. The report of the Committee is covered under item B.4.1.2 below.

A.5 OCEAN SERVICES

8 Committee II completed its work in five sessions. The report of the Committee is covered under item B.4.2.2 below.

A.6 TRAINING, EDUCATION AND MUTUAL ASSISTANCE IN THE MARINE SCIENCES (TEMA)

9 Committee III completed its work in three sessions. The report of the Committee is covered under item B.4.3.2 below.

A.7 GUIDELINES FOR THE STRUCTURE AND RESPONSIBILITIES OF THE SUBSIDIARY BODIES OF THE COMMISSION

10 Committee IV completed its work in two sessions. Approval of the report of the Committee is recorded under item B.6.1 below. The approved Guidelines (document IOC-XI/C-IV/SR) will be reproduced in the next revision of the IOC Manual Part I (Section 4).

A.8 CLOSURE OF THE SESSION

11 The Chairman thanked the participants for their contributions to the discussions and closed the Preparatory Meetings at 12.20 p.m. on Saturday, 20 October 1979.

PLENARY SESSIONS

B.1 OPENING OF THE SESSION

The Chairman, Dr. A. Ayala-Castañares, opened the Plenary Sessions of the eleventh session of the IOC Assembly, at 10.00 a.m. on Thursday, 25 October 1979 in Unesco Headquarters, Paris. 12

He welcomed the participants and introduced Dr. A. Kaddoura, Assistant Director-General for Science of Unesco, who greeted the participants on behalf of the Director-General and presented an opening address to the assembled participants. 13

Dr. Kaddoura stated that in his four years as Assistant Director-General for Science of Unesco, he had come to respect and admire the Intergovernmental Oceanographic Commission and its tenacity of purpose, and that he sincerely believed that Unesco should recognize the privilege of acting as the parent organization for the Commission. At the same time he drew attention to the considerable amount of administrative support provided to the Commission by Unesco which does not appear in the Commission's budget. 14

He then recalled the original purposes for which the Commission had been founded and the fact that it was envisaged from the start as a body having functional autonomy within the Organization. The IOC had been placed within Unesco because of two of the basic functions on which the Organization was founded - education and scientific research - but at the same time it was given close links with the other Specialized Agencies having more applied responsibilities in the oceans. 15

The full text of Dr. Kaddoura's address was distributed to the Assembly and is given in Annex III. 16

The Chairman, in thanking Dr. Kaddoura for his opening address, noted the particular importance of this eleventh session of the Assembly in view of the present historic times and the fact that there is no doubt that in the next few years there will be radical changes in the IOC, largely as a consequence of the deliberations of the Third United Nations Conference on the Law of the Sea, which has referred the marine sciences to higher levels of governmental machinery. 17

He then extended a particular welcome to eight new Member States which had joined the Commission since the tenth session of the Assembly: the Bahamas; Cyprus; Ireland; the Democratic People's Republic of Korea; Nicaragua; Western Samoa; Saudi Arabia; and the Republic of Seychelles, bringing the total membership of the Commission to 103 (see Annex IV). 18

In concluding, he carried out the sad duty of informing the members of the Assembly of the death, since the tenth session of the Assembly, of a number of respected marine scientists who had made their mark on the Commission in both their individual and professional capacities: 19

Professor Dr. Erich BRUNS (German Democratic Republic)	Founder of the Institut für Meereskunde der Akademie der Wissenschaften der DDR, Rostock-Warnemünde, and its first Director until 1965.

Professor Dr. Pieter KORRINGA (Netherlands)	Former Director of the Netherlands Institute of Fisheries Research, Ijmuiden and for many years a member of the Netherlands delegation to the IOC.
Professor Donald L. McKERNAN (U.S.A.)	Director, Institute for Marine Studies, University of Washington, Seattle. He participated actively in the preparatory work leading up to the establishment of the Commission and subsequently as head of the U.S. delegation.
Professor John E.G. RAYMONT (United Kingdom)	Professor of Biological Oceanography, University of Southampton. At the time of his death he was an active adviser to the Commission in the field field of training and education.
Academician Vasily V. SHULEIKIN (USSR)	One of the founders of modern marine sciences and a major contributor to the development of the modern theory of ocean waves.
Professor George P. WOOLLARD (U.S.A.)	University of Hawaii. One of the most prominent figures in marine geophysics. He was largely responsible for the planning of the International Geophysical Year and the Upper Mantle Project.

20 The Assembly honoured their memory by observing one minute of silence.

21 The full text of the Chairman's statement was distributed to the Assembly and is given in Annex III.

22 Mr. Bernardo Zuleta, Under Secretary-General of the United Nations, Special Representative of the Secretary-General to the Third United Nations Conference on the Law of the Sea, then addressed the Assembly. He expressed the thanks of the Conference secretariat for the considerable help given by the officers and staff of the IOC. The Interim Composite Negotiating Text is likely to be fully agreed by next spring (1980), which could pave the way for a treaty next autumn. Some difficulties remain, but the timetable had been unanimously agreed by the Conference participants, with often unexpected coincidence of viewpoint between quite different countries.

23 These developments would, he said, certainly have a profound influence on the role of the United Nations system as a whole and on that of the IOC in particular.

24 Ambassador J.M. Bákula, Secretary-General of the Comisión Permanente del Pacífico Sur, opened his statement by remarking that the IOC Assembly was meeting at a time without precedent: when science and technology were increasingly being pressed into the service of peace and happiness; and when, it is hoped, the Third United Nations Conference on the Law of the Sea will come to a successful conclusion. The momentum gained must be maintained,

especially for the benefit of the developing countries. In this light the role of the IOC was greater than ever before.

He noted that the Permanent Commission and the IOC had established a formal working relationship agreement. While his Commission served four countries of western Latin America, this agreement would help incorporate them into the global structure. Regionalization of activities helps to promote the marine sciences in the Member State but there is also a need for inter-agency, intersectoral and international co-operation. 25

On Friday, 26 October, Mr. Amadou-Mahtar M'Bow, Director-General of Unesco, welcomed the participants and apologized for the fact that he had been unable to attend the opening session the previous day. He then assured the Assembly how much he appreciated the close co-operation that has always been maintained between the Commission, its Executive Council and the Unesco Secretariat. He went on to thank the Chairman personally, and the Executive Council, for providing him with their helpful opinions regarding the appointment of a new Secretary for the Commission. 26

The Director-General thanked the Commission for having also represented Unesco at the Third United Nations Conference on the Law of the Sea and confirmed that Unesco is determined to contribute as fully as possible to the Conference through the IOC. He then drew attention to the Plan of Action adopted by the United Nations Conference on Science and Technology for Development, another recent major event in the United Nations system, and announced that as a direct result, he had found it necessary in the preparation of the next programme and budget, to take as a hypothesis the doubling of the growth rate for activities in the field of science and technology. 27

In concluding, Mr. M'Bow again welcomed the close co-operation existing between Unesco and the Commission and expressed his determination to continue to act along the lines defined by the Commission, in order not only to promote progress in the marine sciences but also to enable all countries, and all peoples, to turn to the best possible account the extraordinary resources that lie hidden in the sea. 28

The full text of Mr. M'Bow's address was distributed to the Assembly and is given in Annex III. 29

The Chairman thanked Mr. M'Bow and replied to some of the points raised by the Director-General. The text of Dr. Ayala-Castañares's reply is given in Annex III. 30

B.2 ADMINISTRATIVE ARRANGEMENTS FOR THE SESSION

B.2.1 Adoption of the agenda

References: documents IOC-XI/1 prov., IOC-XI/1 prov. Corr., IOC-XI/2

The agenda was adopted with the addition of one sub-item proposed by the representative of SCOR; this also entailed a minor amendment to the title of the item (see Annex I - section B). 31

B.2.2 Election of rapporteurs

By agreement with the heads of delegations concerned, four rapporteurs were appointed for specific items of the agenda, as follows: 32

Items B.3 and 4	Mr. G.F. Quinlan (Australia)
Item B.6	Dr. M. McMullen (Canada)
Item B.7	Mr. W.L. Sullivan (U.S.A.)
Items B.8 and 9	Dr. J.-O. Strömberg (Sweden)

33 The Secretary agreed to cover items B.1, 2, 5, 10, 11, 12 without the services of a Rapporteur.

B.2.3 Conduct of the session; timetable

References: documents IOC-XI/1 Add. prov., IOC-XI/2

34 The Chairman reported on the decisions of the Steering Committee regarding the conduct of the session. These were accepted. He then proposed the establishment of Committee V - Programme and Budget - under the chairmanship of Dr. N.J. Campbell, First Vice-Chairman. The Commission agreed and Dr. Campbell accepted the appointment.

35 The Secretary introduced his proposals for the timetable for the Plenary Sessions.

36 In response to a question from the floor, the Chairman explained that although Committee VI - Future Role and Functions of the Commission - was shown on the timetable, the Steering Committee has decided that this Committee would most likely not be needed.

B.2.4 Arrangements for the elections; Nominations Committee

References: resolution EC-I.11;
document IOC/INF-303 rev. 2

37 The Secretary drew attention to the fact that the elections would take place on Monday, 29 October. He then introduced document IOC/INF-303 rev. 2 - Technical Arrangements for the Biennial Elections of Officers of the Commission and other Members of the Executive Council - explaining a number of specific points therein. He also clarified certain matters in response to questions from the floor.

38 The Chairman announced that, in accordance with Rule of Procedure no. 12, a Nominations Committee had been appointed by the Steering Committee and would consist of representatives from the following Member States: Brazil, Egypt, Federal Republic of Germany and USSR. He had invited Rear-Admiral L.C. de Freitas of Brazil to chair the Committee. It was noted that the Terms of Reference for the Nominations Committee are given in resolution EC-I.11.

39 An amendment to Rule of Procedure no. 18, presented by the delegates of Canada, Federal Republic of Germany, India, Netherlands and Philippines, was adopted unanimously as resolution XI-1. This increased the size of the Executive Council to the five office bearers plus the representatives of 20 Member States.

B.2.5 Documentation, etc.

Reference: document IOC-XI/4

40 The Secretary introduced the documentation for the session. He reported that, by decision of EC-XII, documents IOC/EC-XII/6 - Additional Background Information requested by the Council at its eleventh session on documents IOC/EC-XI/21 "Recommendations of the Working Group on the Future Role and

Functions of the Commission" - and IOC/EC-XII/7 - The Purpose and Functions of the Intergovernmental Oceanographic Commission and Directions for its Future Programmes - would be distributed to the Assembly for use in item B.6.2 of the agenda.

B.3 STATEMENTS BY THE CHAIRMAN, FIRST VICE-CHAIRMAN AND THE SECRETARY ON INTERSESSIONAL ACTIVITIES

B.3.1 Statement by the Chairman

The Chairman pointed out that there were now 103 Member States and welcomed those appearing at an IOC Assembly for the first time. 41

He thanked the Executive Council and his Vice-Chairmen for their strong support. 42

Regarding his commitment to look for more funds for the Commission, he reported the strong support for IOC given by the General Conference of Unesco, and the considerable encouragement he had received during his discussions with the Director-General, the Deputy Director-General and the Assistant Director-General for Science, of Unesco. He had also met with the Executive Heads of the other ICSPRO agencies (United Nations, FAO, IMCO and WMO), as well as the Executive Director of UNEP, having participated in the 17th, 18th and 19th sessions of ICSPRO. The most important aspect of these interchanges was the future role and functions of the Commission. 43

He had represented the Commission at the 7th and 8th sessions of the Third United Nations Conference on the Law of the Sea, in rotation with the Vice-Chairmen and the Secretary, which greatly improved the image of the IOC held by delegates and the UNCLOS secretariat. 44

The Chairman had formed a planning group, consisting of the Officers of the Commission, the Chairmen of the Working Committees and of the Scientific Advisory Board, and the Secretary, to draw up the 1981-1982 budget. 45

He had served also as Chairman of the Working Group on the Future Role and Functions of the Commission, which had reached important conclusions on objectives and structure, funding, changes in the statutes, programmes, relations with ICSPRO agencies, and documentation. 46

He had attended the second session of IOCARIBE and worked closely with the Chairman and the Regional Secretary of IOCARIBE. 47

A working relationship agreement had been signed with the Comisión Permanente del Pacífico Sur. 48

B.3.2 Statement by the First Vice-Chairman

Dr. Neil J. Campbell, First Vice-Chairman, referred, in particular, to the work on the study arising from resolution X-25 on the Future Role and Functions of the Commission. Questionnaires had been developed for the Working Group on the Future Role and Functions of the Commission, and the results of intersessional studies presented to the two meetings of the Working Group and to the Executive Council sessions. The new programme areas identified as being of fundamental concern to the Commission were ocean climate and scientific research in relation to living and non-living marine 49

resources; the latter area was identified as being of particular interest to developing countries. An in-depth review of the IOC Statutes had also been undertaken in the light of the Informal Composite Negotiating Text of the Third United Nations Conference on the Law of the Sea. Some of the results would be presented to the Assembly in connection with proposed changes to these Statutes. Various options on how the IOC could be constituted within and outside its present framework were also studied, as well as possible modifications to Assembly and Executive Council cycles and documentation procedures. General criteria for assessing the scientific activities of governing body sessions had also been considered.

50 Dr. Campbell remarked that, in his view, the three themes - ocean climate, and research on living and non-living resources - provide a framework within which the Commission could better relate and focus the future activities of its subsidiary bodies. He noted that these three themes had provided the basis upon which he had organized the Anton Bruun Memorial Lectures for 1979.

51 Dr. Campbell had also worked with the Chairman, the Secretary and others in attempting to improve the timing and submission to Unesco of the Commission's Programme Forecast for the next biennium. In collaboration with the Deputy Secretary of the Commission, Dr. G. Giermann, he had prepared document IOC/BUPLAN-I/2 rev.4 taking into account guidelines established by previous sessions, and suggestions from several Member States. It was clear that the Commission lacked resources for the activities it was already attempting to undertake, and Dr. Campbell expressed the hope that the Commission could reorganize its work and funding to reflect its critical needs, particularly before taking on any new programmes.

52 Finally, Dr. Campbell commented on the favourable reception IOC representation had received at the Third United Nations Conference on the Law of the Sea. He hoped that the Commission could continue to attend the UNCLOS negotiations so as to ensure that the IOC was recognized not just as one of the competent international organizations, but as the most competent international organization in ocean science and services.

B.3.3 Statement by the Secretary

References: documents IOC-XI/6 and 6 Add.

53 The Secretary presented his written report (documents IOC-XI/6 and 6 Add.), as called for in Rule of Procedure no. 50.

54 He pointed out that his report covered the period mid-November 1978 to mid-June 1979, the latter being the cut-off date when the document was drafted. Reports covering the earlier period since the tenth session of the Assembly which had been submitted to the Executive Council (documents IOC/EC-X/6 and 6 Add., IOC/EC-XI/6 and 6 Add.) could be made available on request.

55 The Secretary then elaborated on certain information in his report which required updating in the light of subsequent developments.

56 He drew the attention of the session to the following matters (paragraph references are to document IOC-XI/6).

(a) The IOC/UN(OETO)/Unesco/UNU Workshop on Coastal Area Development and Management in Central America was held on the dates shown in paragraphs 1.2.1 and 3.2.3. It appears to have been well received.

(b) The WESTPAC Workshops on Marine Geoscience Problems in the Northwest Pacific, and on Coastal Transport of Pollutants, are now scheduled to be held in Japan in March 1980 (paragraph 1.2.6).

(c) Southern Oceans Information Circular no. 2 has now been issued and can be made available on request (paragraph 1.2.7).

(d) The planning meeting for the Pilot Ocean Monitoring Study (POMS) and the first session of the Joint SCOR/IOC Working Group on Climatic Changes and the Ocean (CCCO) were held as scheduled in early October in Miami (paragraph 1.3.2). Professor Roger Revelle, Chairman CCCO, had attended the preparatory meetings of the Assembly and had presented a report on the latest developments in this project. The text of his statement is given in Annex III.

(e) The FAO/IOC/UNEP ASFIS Training Seminar/Workshop will now be held in Cartagena, Colombia, 3-14 December 1979 (paragraph 2.2).

(f) There had been some difficulties in regard to the preparation of an Annotated Bibliography of Textbooks and Reference Materials in the Marine Sciences (paragraph 3.4.1). This will cause some delay in publication but it is still hoped that it will appear in 1980.

(g) As has already been widely promulgated, Dr. Mario Ruivo has been appointed to the post of Secretary IOC from 1 January 1980 (paragraph 6.2.1).

B.4 OPERATIONAL ACTIVITIES

B.4.1 Ocean Science

B.4.1.1 Statement by the Third Vice-Chairman on intersessional activities

Mr. Østvedt noted that he had prepared his report in such a way that it could also be taken as an introduction to the work of Committee I. The International Decade of Ocean Exploration (IDOE) had seen great advances in all oceanographic disciplines and an increased interest among Member States in the ocean and its resources. The resulting growth of interest in discipline-oriented programmes, and programmes which could assist in the proper evaluation and management of marine resources, had led to a greater emphasis on regional activities. 57

Since the last Assembly, four major regional programmes had been further developed. The Regional Association for the Caribbean and adjacent regions (IOCARIBE) had fulfilled most of the Commission's expectations and would certainly serve as an example for other similar regional activities. The Investigations of "El Niño" had, thanks to the activities of the Regional Secretariat for ERFEN under the Comisión Permanente del Pacífico Sur (CPPS), as well as scientific and financial support from IOC, Unesco, WMO and FAO, continued to develop successfully and would be an important component of the Commission's future programme under climate. The Investigations in the North and Central Western Indian Ocean (CINCWIO) was still in a planning phase and would need considerable support from Member States as well as from the ICSPRO agencies. The Co-operative Study of the Kuroshio and adjacent regions (CSK) had been terminated with the holding of the fourth CSK symposium in February 1979 in Tokyo; planning for a new programme of research in the Western 58

Pacific (WESTPAC) was well under way. The Co-operative Investigations of the Northern part of the Eastern Central Atlantic (CINECA) had been terminated during 1978 with the holding of a Symposium on the Canary Current - Upwelling and Resources, in Tenerife (Canary Islands).

59 Mr. Østvedt also noted that the importance of the Commission's global programmes warranted equal consideration. The holding of workshops on marine pollution in several regions, supported by UNEP, had focused more attention on the implementation plan for GIPME. Although planning of the oceanographic programmes under FGGE had started late, the programme had been an important contribution to GARP and held out the promise for similar collaboration with WMO under the World Climate Programme.

60 Mr. Østvedt noted that he had participated in the work of finalizing the document on "The Purpose and Functions of the Intergovernmental Oceanographic Commission and Directions for its Future Programme" (IOC/EC-XII/7). This document would give useful guidance to the Commission in its future programme planning, although it would need to be kept under review and updated as required. For this purpose the Commission would need the assistance of the advisory bodies to the Commission, as well as the Scientific Advisory Board (SAB) (since renamed Scientific Review Board (SRB) - see resolution XI-29).

61 In concluding, Mr. Østvedt thanked the Chairman, the other Vice-Chairmen, the Secretary and the Secretariat, and members of the Scientific Advisory Board, for their assistance during his period of office.

62 The delegates of the USSR, Japan and Australia welcomed the report of the Third Vice-Chairman. The delegate of the USSR noted some problems being experienced with data exchange arrangements in respect of IOCARIBE and GARP projects. Mr. Østvedt remarked that he was not aware of such problems but that any difficulties could certainly be looked into.

63 The President of SCOR (Dr. K.N. Fedorov) expressed his satisfaction with the considerable progress achieved in the reassessment by the Commission of its marine science programmes, as was evident from the report of Committee I. Outlining some of the major achievements in the progress of marine science during the past decade, Dr. Fedorov reminded members of the Commission of the effect that the tremendous and extremely rapid progress of marine science was having on the future role, functions and programmes of the IOC. In carrying out its functions, SCOR had always enjoyed very close contacts with the world's leading marine scientists who relied upon SCOR for stimulating the most important front-line areas of research. SCOR had earned these close contacts in a hard way by learning to be selective, that is by undertaking only those tasks which were associated with progress in the most important lines of research. This was precisely why SCOR placed such a high value on its advisory functions with IOC and Unesco. These associations permitted SCOR to channel the most important results of scientific progress into the wider oceanographic community and governmental circles of both developed and developing countries. SCOR considered the efficient functioning of this channel to be the necessary condition of current progress in marine science. SCOR therefore stood ready, as usual, to provide the IOC with all the necessary scientific assistance which the Commission might wish to request (see full statement in Annex III).

64 Mr. Østvedt emphasized the Commission's desire to continue its fruitful collaboration with SCOR and the other advisory bodies of the Commission.

B.4.1.2 Report of Committee I - Ocean Science

The report of Committee I (items A.3 and A.4) was submitted to the Plen- 65
ary and approved with a few minor amendments:

A.3.1 GLOBAL ATMOSPHERIC RESEARCH PROGRAMME (GARP)

A.3.1.1 First GARP Global Experiment (FGGE)

References: resolutions IX-6, IX-7, EC-VIII.2, X-5, EC-X.5, FC-X.6, EC-XI.1 and EC-XI.2; documents IOC-XI/10, IGOSS Programme Information Circular no. 18

Mr. G. Withee, Assistant Secretary, called attention to the many differ- 66
ent oceanographic contributions made by Member States of the Commission and by the Secretariat itself during the FGGE, including: participation in the oceanographic programmes of SCOR WG 47; oceanographic data management; and training and assistance to developing country scientists.

The representative of WMO reported that all the planned oceanographic 67
programmes during FGGE had been successfully completed. He expressed, on behalf of WMO, gratitude to IOC for its considerable support in the implementation of FGGE, particularly in facilitating operation of FGGE vessels in foreign waters and ports, and customs clearances.

The Commission commended oceanographic participation in the FGGE, and 68
particularly noted the success of the drifting buoy programme and related training activities under IGOSS.

The Commission felt that training during the FGGE had been very useful, 69
but it stressed the importance of continuing these activities beyond FGGE. The Secretary was instructed to bring this problem to the attention of Member States and of WMO. The delegate of India thanked WMO and IOC for their help during MONEX, and especially the USSR and U.S.A. for their support with training.

The Commission recognized the importance of post-FGGE data management, 70
including the activities of the Responsible National Oceanographic Data Centre for the FGGE Operational Year (RNODC-FOY).

Resolution XI-2 (IOC support to Post-FGGE Activities) was adopted 71
unanimously.

A.3.1.2 Second GARP Objective (Climate)

Reference: resolution EC-XI.1

Dr. K. Voigt, Assistant Secretary, called the Commission's attention to 72
relevant recommendations of the WMO/ICSU Joint Organizing Committee for GARP. He also mentioned some of the activities associated with the GARP Subprogrammes of ALPEX, MONEX, WAMEX and POLEX. The Commission stressed the importance of these sub-programmes of GARP.

A.3.2 Climate

References: resolution EC-XI.1; document IOC/INF-399

The Chairman of SAB, summarized the Board's principal recommendations 73
on ocean climate studies (document IOC/INF-399):

(i) to give high priority to the Committee on Climatic Changes and the Ocean (CCCO);

(ii) to request IGOSS to develop support for climate monitoring programmes;

(iii) to request IODE to develop data archiving and exchange arrangements for climate; and

(iv) to encourage a significant TEMA element of the Commission's climate activities.

74 The Commission in general supported these findings.

A.3.2.1 World Climate Programme

References: documents IOC-XI/9 (WMO resolutions), World Climate Conference Declaration and supporting documents

75 Mr. G. Withee, Assistant Secretary, called attention to the World Climate Conference held by WMO in Geneva, 12-23 February 1979. He recalled that following this conference, the eighth World Meteorological Congress had established a World Climate Programme.

76 The representative of WMO stated that his organization had taken a lead within the framework of the World Climate Programme. However, co-operation of other international organizations is required and in fact the eighth World Meteorological Congress had instructed the Secretary-General of WMO to secure the collaboration of such organizations, including Unesco. He also explained that it had been proposed that the WCP be structured in such a way that the ocean is treated as an integral part of the Programme. For this reason WMO hoped that the Commission would decide to participate actively in the development and implementation of the Programme.

77 The General Secretary of ICES informed the Commission of the activities of his Council in co-ordinating observations over very long time periods (since the beginning of this century) and of special studies, under ICES, to investigate the exchange of water masses between the polar basin and the northern Atlantic.

78 The attention of the relevant IOC subsidiary bodies was drawn to this regional co-operation, as well as to the possibility of contributions from other regional organizations to this activity.

A.3.2.2 SCOR/IOC Committee on Climatic Changes and the Ocean (CCCO)

Reference: document IOC-XI/7

79 Professor R. Revelle, Chairman of CCCO, made a short presentation on climate and, in particular, the role of the new Joint SCOR/IOC Committee on Climatic Changes and the Ocean. The full text of his remarks is given in Annex III.

80 The Commission emphasized the importance of the effects of oceans on climate, but noted that climate studies present an immense, complex, long-term problem requiring a substantial long-term commitment. The importance of continued and close co-operation with WMO in this field was emphasized.

The Commission also felt it was necessary to stress the importance of improved understanding of, and even the ability to forecast, oceanic variability, which has vast consequences for shipping, fishing, coastal management, etc. 81

The Commission decided to co-sponsor the CCCO, and resolution XI-3 (IOC's Role in the study of Climatic Changes and the Ocean) was adopted unanimously with amendments. 82

A.3.2.3 Scientific requirements for long-term ocean monitoring

References: resolutions EC-X.4, EC-XI.1;
document IOC/INF-399

Under this item the results of the Pilot Ocean Monitoring Study meeting, held in Miami, U.S.A., 1-5 October 1979 were reviewed. 83

The Commission noted the necessarily strong involvement of the JWC/IGOSS and the WC/IODE in ocean monitoring. It concluded that it was the task of CCCO to identify the scientific requirements for ocean monitoring, but it would be in part the responsibility of IGOSS and IODE to put these proposals into effect (see item A.5.1.1 below). 84

A.3.3 General Bathymetric Chart of the Oceans (GEBCO)

References: resolution EC-X.8;
document IOC-IHO/GEBCO-VI/3S

The Secretary introduced the Executive Summary of the sixth session of the Joint IOC-IHO Guiding Committee for GEBCO (document IOC-IHO/GEBCO-VI/3S), and informed the Commission that so far 6 sheets (5.05 Mediterranean and Northern Indian Ocean, 5.12 Equatorial and Southern Atlantic, 5.01 Norwegian and Barents Seas, 5.03 North-east North Pacific, 5.06 South-west North Pacific, and 5.04 Northern North Atlantic) had been published. Four more sheets (5.02 North-west North Pacific, 5.11 North-east South Pacific, 5.17 Arctic and 5.18 Antarctic) were in various stages of final compilation and printing, and would be published in the next few months. 85

He reported that it is planned that the full world cover of 18 sheets of the 5th edition of the General Bathymetric Chart of the Oceans would be published in time for the twelfth session of the Assembly (in April 1982) and the XIIth International Hydrographic Conference (in May 1982). 86

In referring to the work of the ad hoc Working Group to study the implications of preparing large-scale maps for the Third United Nations Conference on the Law of the Sea (UNCLOS), he mentioned that the report had been well received and as a result it had been decided not to request the preparation of large-scale maps for UNCLOS. However, such maps, including the 5th edition of GEBCO, will be needed for interpreting the decisions of UNCLOS once it has completed its work (reference resolution EC-X.8). 87

He then announced plans to start, in 1980, a publicity and sales campaign for the GEBCO 5th Edition. He recalled that the data were collected with the assistance of Volunteering Hydrographic Offices from 18 Member States of IHO, and that the published sheets were compiled, scribed, printed and distributed on behalf of the two sponsoring organizations by the Canadian Hydrographic Service. The Canadian commitment will terminate with the publication of the 18 sheets of the 5th edition in early 1982 and was only likely to be continued if a fair proportion of the costs involved could be recovered from sales. The Joint Guiding Committee foresaw a need to 88

continue with a 6th edition incorporating new data, and possibly sheets on other scales.

89 The Commission approved the joint list of terms and definitions of undersea features for international use, which had been developed by the Joint IOC-IHO Guiding Committee, in collaboration with the United Nations Group of Experts on Geographical Names (reference: resolution X-6), and the accompanying proposed guidelines for the standardization of Undersea Feature Names for national use (Annex IV to document IOC-IHO/GEBCO-VI/3).

90 Resolution XI-4 (GEBCO) was adopted unanimously with minor amendments.

A.3.4 Global Investigation of Pollution in the Marine Environment (GIPME)

References: documents IOC/WC-GIPME-III/3S, IOC-XI/16

91 The Chairman of the Working Committee for GIPME informed the Commission of the deliberations of the Working Committee at its third session (Malta, 28 May - 1 June 1979). He referred to: the presently inadequate mechanisms for obtaining information on regional programmes pertinent to GIPME; the need to improve the relationship between IOC and UNEP to the level required for the co-ordination of international marine pollution research and monitoring; the clarification of the roles of the Working Committee for GIPME and the Joint Working Committee for IGOSS; the structure of the Working Committee for GIPME; and the proposed budget for GIPME.

92 The Commission noted the considerable advances since 1972, particularly through the GIPME Group of Experts on Methods, Standards and Intercalibration, the IGOSS Pilot Project on Marine Pollution (Petroleum) Monitoring, and the Programme for Monitoring Background Levels of Selected Pollutants in Open-ocean Waters, the recent developments of which were given in detail. The USSR stressed the need to consider additional measures to establish a permanent marine pollution monitoring system, to continue a review of the health of the oceans and to co-ordinate the multiplicity of regional programmes. The work of the GESAMP Working Group on the Review of the Health of the Oceans, and the GIPME and IGOSS as sources of inputs, were noted.

93 The Commission recognized that the conduct of analysis and evaluation of the state of health of the oceans will depend on the relevant data and information available for each region and subject. Besides this, attention should be given in GIPME to the preparation of a yearly tabulation of data on contaminants in the marine environment. To facilitate the interfacing of the Working Committee for GIPME and the GESAMP Working Group on a Review of the State of Health of the Oceans, the Commission endorsed the view of the Working Committee for GIPME that its Chairman and one nominee participate in the GESAMP Working Group, and that negotiations to this effect be initiated.

94 The Chairman of the IOC Working Group for the Western Pacific (WESTPAC) requested technical advice from GIPME and IGOSS in the development of WESTPAC's marine pollution and coastal current programmes.

95 The Commission took the view that the responsibilities of the IOC and UNEP in marine pollution research and monitoring (recommendation WC-GIPME-III.1) required clarification, and that this should be done on two levels: by the Member States, by co-ordinating the positions of their delegations to the meetings of the governing bodies of IOC and UNEP; and by direct consultations between the Executive Heads of Unesco and UNEP. The

need for close collaboration between IOC and UNEP was considered essential to both. It was recognized that the working relations between the secretariats was effective and cordial, the question being the clarification of their respective responsibilities towards the Member States in the development, co-ordination and supervision of marine pollution programmes in each major oceanic region (see resolution XI-31).

This principle could also be applied to IOC collaboration with other international organizations, ICES being a case in point in relation to the Programme for Monitoring the Background Levels of Selected Pollutants in Open-ocean Waters. The General Secretary of ICES expressed his Council's satisfaction with its co-operation with IOC, and assured the Commission of the future collaboration of the Council in activities of common interest. 96

The Assistant Secretary for Science, of the Comisión Permanente del Pacífico Sur, expressed the satisfaction of his Commission with its collaboration with the IOC (on marine pollution in the South-east Pacific, and ERFEN, for example). 97

The Commission agreed that the provision of scientific expertise to Member States at times of major pollution accidents (recommendation WC-GIPME-III.2) required careful study and endorsed the proposal of the Working Committee to ask the Secretary to undertake such a study, consulting with FAO, IMCO, ICES and other appropriate organizations. It was noted that there may be some procedural difficulties in delivering such a service. The Commission concluded that there was no need for it to consider this question further until the Secretary had submitted his report to the Executive Council. 98

The proposal by the Working Committee for GIPME to start a newsletter (recommendation WC-GIPME-III.3) was supported in principle, but various problems, such as who would edit, print and distribute such a newsletter, needed to be solved. The First Vice-Chairman pointed out that the Commission already had five, essentially regional, newsletters, and that the one proposed here was global in character; this might require four working language versions. He believed that the Commission's policy on newsletters should be reviewed. The cost, although depending on several factors (e.g. size, frequency, editorial services), would be $5,000-$10,000. 99

The recommended budget for 1981-1982, proposed by the Working Committee for GIPME (recommendation WC-GIPME-III.7), was modified by reducing the requested level of support for certain activities. A sum of $34,000 was added to the budget for Marine Pollution Monitoring which had been transferred from IGOSS (see below). It was envisaged that additional funds might become available from UNEP for this purpose but the level of such support was uncertain at the present time. 100

The Commission expressed its thanks to the Government of Malta for hosting the third session of the Working Committee for GIPME. 101

The Commission considered two draft resolutions on the Global Investigation of Pollution in the Marine Environment. After ensuring that certain concepts, especially regarding the establishment of a marine pollution monitoring system, and the tasks of the Working Committee for GIPME had been incorporated satisfactorily, the delegate of the USSR withdrew his draft resolution. With the addition of a clause on TEMA aspects, resolution XI-5 (GIPME) was adopted. 102

A.3.4.1 Scientific Aspects of Marine Pollution Monitoring Programmes

References: resolutions JWC-IGOSS-I.2, JWC-IGOSS-I.4, EC-XI.11; documents IOC-WMO/IGOSS-I/3S, IOC/WC-GIPME-III/3S, IOC/EC-XI/16, IOC/INF-404

103 The main discussions were on the respective roles of the Working Committee for GIPME and the Joint Working Committee for IGOSS and their subsidiary bodies (recommendations WC-GIPME-III.4, 5 and 6). There was a general view that the Working Committee for GIPME should assume complete responsibility for marine pollution research and monitoring, working in close consultation with other appropriate bodies.

104 Nevertheless, it is essential to maintain all that has so far been achieved, in terms of organization, co-ordination, training, education and mutual assistance (especially to developing countries), data handling, etc., under the Marine Pollution (Petroleum) Monitoring Pilot Project (MAPMOPP) and in its evolution into a Marine Pollution Monitoring (MARPOLMON) programme.

105 Even with the proposed separation of responsibilities, IGOSS could continue to advise GIPME on such matters as network design and data transmission.

106 The transfer of responsibilities from IGOSS to GIPME when MAPMOPP was in transition to MARPOLMON requires careful planning so that the benefits to the Member States are not jeopardized. This question should be discussed at the Third IOC/WMO Workshop on Marine Pollution Monitoring (New Delhi, February 1980).

107 The transfer is part of the structural evolution of the IOC and the Commission stressed its high regard for the work of IGOSS, especially that of its Group of Experts on MAPMOPP, for the Chairman of the Joint IOC/WMO Working Committee for IGOSS, and for his predecessor, the Chairman of the IOC Working Committee for IGOSS. The Chairman of JWC/IGOSS requested detailed guidance from the Commission to his Working Committee on its future responsibilities. The Commission expressed the hope that the marine pollution monitoring programme under GIPME would be even more successful under the new arrangements.

108 The representative of WMO said that, in principle, his organization would have no difficulty with the proposed new arrangements, subject to approval by the WMO Congress or Executive Committee, and would continue its full collaboration with IOC. He informed the Commission of the reduced priority now being given by WMO to marine pollution monitoring.

109 Regarding the subsidiary bodies of GIPME under the proposed new arrangements, it was felt that the direction IOC would take in marine pollution research and monitoring in the next few years would determine needs. Strong approval was expressed of the work of the GIPME Group of Experts on Methods, Standards and Intercalibration (GEMSI). The assignment of new responsibilities was discussed, but concern was expressed that the assignment of such responsibilities should not compromise GEMSI's ability to carry out its present tasks, especially the open-ocean intercalibration exercise planned for early 1980. A slight expansion in the size of the GIPME Group and the retitling of the Group as the GIPME Group of Experts on Marine Science Investigations, as proposed by the Working Committee for GIPME (recommendation WC-GIPME-III.6) were also discussed.

Resolution XI-6 (Responsibilities for Marine Pollution Monitoring within the Commission) was adopted, and the Chairman of JWC/IGOSS was asked to thank the Group of Experts on MAPMOPP for its work. 110

In view of the resignation of Dr. Mario Ruivo, the incumbent Chairman of the Working Committee for GIPME, the Commission decided to elect a new Chairman. The delegate of Canada proposed Dr. Vladimir Gruzinov (USSR). This was strongly seconded and he was elected unanimously. 111

The delegate of Mexico made a statement of appreciation of Dr. Ruivo's service, which was endorsed by the Chairman of the Commission. 112

A.4 OCEAN SCIENCE - REGIONAL PROGRAMMES

References: resolutions V-13, VI-11;
document IOC/INF-391

Dr. K. Voigt, Assistant Secretary, reported that at the 67th Statutory Meeting of ICES (Warsaw, Poland, 1-10 October 1979), the Hydrographic Committee had considered alternative methods of continuing the exchange of information on studies in the North Atlantic, between the Secretariats of ICES, ICNAF/NAFO and the IOC and its operational programmes. 113

Mr. H. Tambs-Lyche, General Secretary of ICES, recalled that, since 1972, in implementing resolutions V-13 and VI-11 on Co-operative Systematic Studies in the North Atlantic, Joint ICES/ICNAF/IOC Intersecretariat Consultation Meetings with leaders of large oceanographic projects in the Atlantic had been organized every two years, just before the ICES Statutory Meetings in Copenhagen, Denmark. These reports have been brought to the attention of IOC. By the Report of the 4th meeting of the ICES/ICNAF/IOC Co-ordination Group for the North Atlantic with representatives of international marine research projects in the North Atlantic - Charlottenlund, 30 September 1978 (document IOC/INF-391), the Commission had been informed of the discussions held last year, when the participants had asked the three sponsoring organizations to look for alternative ways of achieving the necessary exchange of information. He recognized however that there was a need for continued collaboration between ICES and the Commission in fields of common interest. 114

The matter was considered and resolution XI-7 (Co-operative Systematic Studies in the North Atlantic) was adopted unanimously. 115

A.4.1 Investigations of "El Niño"

References: resolution EC-XI.8;
documents ICC-WMO-CPPS/EL NIÑO-I/3S, IOC-XI/7

Dr. K. Voigt, Assistant Secretary, recalled resolution EC-XI.8 in which the Council, in principle, had approved the Executive Summary of the first session of the Joint IOC/WMO/CPPS Working Group on Investigations of "El Niño" (Callao, Peru, 13-17 October 1978), and requested the Secretary, in collaboration with WMO, CPPS and FAO, to take necessary steps to develop the activities recommended by the Joint Working Group. He also referred to the advice the group had received from SCOR Working Group 55 "Prediction of 'El Niño'" (see document IOC-XI/7), and further reported that the first session of the SCOR/IOC Committee on Climatic Changes and the Ocean (CCCO) had considered a progress report by the Chairman of SCOR WG55, Professor D. Stuart (U.S.A.), corresponding CCCO member. 116

117 With the assistance of the Secretary-General CPPS, Ambassador José Miguel Bakula, the Assistant Secretary presented the Committee with a Progress Report on the Estudio Regional del Fenómeno "El Niño" (ERFEN). Dr. Luis Arriaga, Scientific Secretary ERFEN, and Vice-Chairman of the Joint Working Group responsible for TEMA aspects, emphasized the interdisciplinary and intersectoral character of this study, which covers a substantial part of the eastern Pacific, and the scientific and financial support the project has received from IOC, Unesco, WMO and FAO since its inception at the Workshop on the Phenomenon known as "El Niño", held in Guayaquil, Ecuador, December 1974.

118 He also recalled that the project had received general support from the governments participating in ERFEN/CPPS, and that UNDP support for a regional project will be sought. He finally suggested that the Investigations of "El Niño" could be regarded as a kind of baseline activity under the proposed role of the Commission in the long-term studies of climatic changes and the ocean, particularly as concerning the identification of training needs and transfer of technology.

119 The representative of WMO, in recalling recommendations of the seventh session of the WMO Regional Commission III (Latin America), Brasilia, Brazil, September 1978, that meteorological support be given for "El Niño" studies, provided information on the objectives of the forthcoming WMO Implementation Co-ordination Meeting related to the Investigations of "El Niño", to be held in Quito, Ecuador, 26-30 November 1979. He expressed the wish that the Commission would support the attendance of experts engaged in "El Niño" studies so that the regional Meteorological Services can be informed of their requirements, taking into account the relevant recommendations of IOC-WMO-CPPS/EL NIÑO-I (Callao, Peru, 13-17 October 1978).

120 The delegate of France stressed that the "Investigations of 'El Niño'" is a typical and suitable project for co-operation among a number of disciplines and international organizations, and pointed to the fact that this phenomenon is a localized manifestation of global interaction of ocean and atmosphere, to which his country contributes through systematic oceanographic studies in the eastern tropical Atlantic and the tropical Pacific.

121 The delegate of Gabon, referring to the statement by the delegate of France, asked for it to be put on record that the existence of an "El Niño"-like phenomenon in the area of the Gulf of Guinea and adjacent waters deserves special attention.

122 On behalf of his government, the delegate of Ecuador, in addition to the invitation to WMO to host the WMO Implementation Co-ordination Meeting (see above), officially invited the three sponsoring organizations to hold the 2nd session of the JWG in Ecuador, in late 1980. In this respect, he outlined the oceanographic programme of his country in support of "El Niño" studies, in particular on board r/v ORION, and submitted to the Secretary a series of publications and reports, a list of the titles of which was later distributed.

123 The delegate of the U.S.A., in suggesting to the Commission that it might compliment the Comisión Permanente del Pacífico Sur (CPPS) and its Member States on the fine progress that has been made in the ERFEN project which should be considered as a very valuable component of the Commission's ocean climate programme, informed the Commission of the planned "Equatorial

Pacific Ocean Climate Studies" (EPOCS) of his country which has common characteristics with ERFEN.

He also suggested that the Scientific Committee of ERFEN might be invited to prepare a scientific report, in co-operation with other experts from outside the region as identified by the IOC's subsidiary bodies, for consideration by the Assembly at its next session. It was noted that this would have to be supported by the Commission. 124

The delegate of Australia and the Chairman WG/WESTPAC drew the attention of the Commission to proposals and projects to strengthen, in the western part of the Pacific, the system of sea level observations because of their potential value in forecasting "El Niño" manifestations. 125

Dr. Arriaga, expressing on behalf of the countries of the region his satisfaction with the wide support and great importance given to this project by various speakers, then informed the Commission of the status of the translation into English, and distribution, of the ERFEN Bulletin (of which now three volumes - 1977, 1978 and 1979 - have appeared in Spanish and one volume in English - 1977). 126

In the discussion, the delegate of the USSR stressed the fact that the regional or local phenomenon was caused by global processes. The delegate of France recalled the relevance of this project to the activities of the Committee on Climatic Changes and the Ocean (CCCO). 127

Resolution XI-8 (Investigations of "El Niño") with amendments, was adopted unanimously. 128

A.4.2 *Co-operative Investigation in the North and Central Western Indian Ocean (CINCWIO)*

References: resolutions X-3, EC-X.10;
document IOC/CINCWIO ad hoc/3S

Mr. G. Kitaka, Assistant Secretary, introduced document IOC/CINCWIO ad hoc/3S, the Executive Summary of the meeting of the countries of the CINCWIO region which was convened in response to IOC resolution X-3, and elaborated upon some of the most important recommendations of the meeting. 129

Welcoming the IOC's activities in the region, the delegate of Kenya expressed concern that the implementation of the programme might be delayed until the Technical Advisory Group for CINCWIO had re-examined and identified the outstanding scientific problems in the area, despite the fact that the countries of the region have already indicated what they want to do and are capable of doing. He emphasized that he was not opposing the establishment of the Group, but rather trying to appeal to the Commission not to use the Group as an excuse to delay the implementation of the programme. He went on to say that there had been some disappointment in the area with the recent FGGE operations, and cited the specific example of Kenya which had given more to the FGGE operational teams than they have so far received. He therefore proposed that every effort be made to ensure that some scientists in the region are given the chance to participate in the scientific analysis of the FGGE data in Miami. He concluded by giving full support to the proposal for strengthening the Regional Office of Science and Technology of Unesco in Nairobi by the addition of a marine science expert, and to the proposal to invite the countries of the region to establish a Regional Co-ordinating Committee for the programme. 130

131 In response, Dr. K. Voigt, Assistant Secretary, assured the delegate of Kenya that a recommendation to this effect had already been made by the Secretariat, and that it was hoped that funds would be made available to allow some scientists from the region to work in Miami on the FGGE results.

132 Speaking in support of CINCWIO, the delegate of the USSR pointed out that they would prefer to see a Co-ordinating Committee for CINCWIO that was open to all the Member States of the Commission rather than only those from the region.

133 The delegate of the Federal Republic of Germany expressed disappointment that, contrary to their expectation that all countries in the region would welcome and support their proposed programme within the region, according to the Executive Summary none of the Gulf countries had so far expressed interest in the programme. However, he assured the Commission that the extension of the region only to the south would not affect his government's intention to assist the countries of the region, and that it was hoped that it would soon be possible to announce a contribution to the IOC Trust Fund, to be used mainly for TEMA activities and, in this respect, also for CINCWIO. The delegate of India also pledged his country's support to the CINCWIO programme.

134 The delegate of Denmark, supporting recommendation CINCWIO ad hoc.4, emphasized the need to give as much importance to the training of technicians as to that of personnel at a higher level, and indicated that his government would welcome requests for such training, either bilaterally or through the IOC.

135 The representative of Unesco informed the Committee that it is hoped, subject to a decision by the Unesco General Conference, to appoint a marine science adviser to the Regional Office of Science and Technology for Africa (ROSTA), in Nairobi, during the next biennium. This will greatly assist the provision of support to CINCWIO.

136 Resolution XI-9 (Scientific Investigations in the North and Central Western Indian Ocean) was adopted unanimously after considerable discussion of the status of the new subsidiary bodies being established.

137 The Secretary pointed out that the decision embodied in the resolution to establish an IOC Programme Group and a Committee of Experts would necessitate provision of an additional US $30,000 a year (approximately) which had not been budgeted for in the draft programme and budget (document IOC/BUPLAN-I/2 rev.4). The Assembly accepted these financial implications and approved the necessary funding (see item B.7.1 below).

A.4.3 Western Pacific (WESTPAC)

References: resolutions X-11, EC-X.10;
documents IOC-XI/7, IOC-XI/11

138 Dr. K. Voigt, Assistant Secretary, recalled that SCOR, following a request of the Executive Council, in resolution EC-XI.7, to provide scientific advice on the broader proposals of the Physical Oceanography sub-group of the WESTPAC workshop, had already indicated to IOC that these proposals were considered important and timely, and that detailed further advice would be forwarded after consideration had been given to these proposals at the first session of the SCOR/IOC Committee on Climatic Changes and the Ocean (CCCO).

As requested by the Executive Council in resolution EC-XI.7, Dr. A. Soegiarto, Chairman WG/WESTPAC, then presented document IOC-XI/11 "Summary of the Programme of Research for the Western Pacific (WESTPAC)". 139

In summarizing the status and planned WESTPAC activities in 1980-1981, in the fields of geology, geophysics and mineral resources, coastal transport of pollutants, biological methodology, marine pollution research and monitoring using commercially exploited shellfish as determinants, and in ocean monitoring activities in the WESTPAC region, he emphasized the need to establish close liaison with other IOC programmes, such as IODE, IGOSS, TEMA, and with CCCO. 140

He noted that the designation of the Japan Oceanographic Data Centre, which had operated so successfully during the Co-operative Study of the Kuroshio and adjacent regions (CSK), as RNODC for WESTPAC was much appreciated. Since the majority of Member States in the WESTPAC region are developing countries, he recalled that Dr. Piamsak Menasveta, as WESTPAC TEMA co-ordinator, will, in close co-operation with the WC for TEMA and the respective Chairmen of WESTPAC projects, discuss the development of a strong TEMA component in each of the above activities. He finally reiterated, as expressed in decisions WESTPAC-I.3 and 4, the appeal to Member States to support the programme strongly. 141

Professor R. Revelle, Chairman CCCO, then summarized the comments on the WESTPAC Programme in Physical Oceanography, which draws special attention to the need to provide a description of the large-scale, low-frequency fluctuations of the heat content, and the geostrophic circulation of the Western Pacific and its interaction with the atmosphere. He recommended that support should be given by Member States to enable the Japanese oceanographic section along the meridian of 137°E to be repeated as frequently as possible. He also noted the desirability of extending the programme of measurement of sea-level variations, with emphasis on oceanic islands, and for them to be reported in near-real-time, because of their impact, under the southern oscillation hypothesis, on the phenomenon known as "El Niño" which occurs on the eastern side of the Pacific; and that the application of drifting buoys in this vast area, the use of fleets of opportunity, as well as satellite techniques, should be given full consideration in further studies of meanders, mesoscale eddies and frontal phenomena associated with such strong currents as the Kuroshio and the Equatorial current system. 142

The delegate of the Philippines, supported by Japan, the Democratic People's Republic of Korea and China, expressed deep interest in the further development of the programme. It was officially announced that the Government of the Philippines will host the Task Team meeting on Marine Pollution Research and Monitoring, to be held in Manila later next year. The delegate of Japan informed the Commission that arrangements were in hand with the IOC Secretariat regarding the possibility of convening two WESTPAC workshops in Tokyo by the end of March 1980, with financial support from his government. 143

The delegate of the Democratic People's Republic of Korea expressed his country's readiness, as a new Member State which has only recently joined the Commission, to establish links with the WESTPAC secretariat and the WESTPAC programme. He emphasized the need, since his country was unable to participate in the earlier activities of the Commission in the Co-operative Study of the Kuroshio and adjacent regions, to obtain access to the scientific results achieved and the experience gained in planning marine scientific research and monitoring in this area. 144

145 The delegate of China reiterated his country's viewpoint on WESTPAC, that any marine scientific research in the zones under national jurisdiction must respect the sovereignty of, and require the prior approval and permission of, the countries concerned. He also supported the suggestions put forward by the delegate of the Democratic People's Republic of Korea.

146 The Secretary informed the Commission that as soon as approval was received from governments for the nomination of experts and specialists to work in Task Teams, the Chairman for WESTPAC will send out formal invitations. He also informed the Commission that Australia will host a Training Course for Marine Technicians of the WESTPAC region in June 1980. He further provided information on the forthcoming session of the FAO/IPFC Standing Committee on Resource Research and Development (Hong Kong, 3-8 December 1979), at which a WESTPAC representative will discuss, in line with decision WESTPAC-I.11, aspects of common interest in the proposed WESTPAC programme.

147 The delegate of the USSR supported the main lines of the WESTPAC programme as it had been discussed at the first session of the WG/WESTPAC in Tokyo in February 1979. However, in recalling the position of his delegation at the eleventh session of the Executive Council (Mexico City, February/March 1979), he proposed that IOC be consistent in setting up new machinery for co-operative studies.

148 Resolution XI-10 (WESTPAC) was adopted unanimously.

A.4.3.1 IDOE Studies on East Asia Tectonics and Resources (SEATAR)

References: resolution X-11B;
documents CCOP-IOC/SEATAR(V)/3S,
IOC Workshop Report no. 20

149 The Deputy Secretary informed the Commission that the Joint CCOP/IOC Working Group on IDOE Studies on East Asia Tectonics and Resources (SEATAR) had held its Second CCOP-IOC Workshop on IDOE Studies and Resources in Bandung, Indonesia, 17-21 October 1978 (IOC Workshop Report no. 20), to review the state of implementation of its programme, and to develop further the programme so as to adapt it to needs in the decade to come. The Workshop recommended that the Joint CCOP-IOC Working Group continue its work beyond the end of the International Decade of Ocean Exploration, 31 December 1980. The Deputy Secretary invited the Commission to endorse, as has already been done by CCOP, the reports of the 4th and 5th sessions of SEATAR, as well as to approve the revised terms of reference of the SEATAR group for the post-IDOE period.

150 The delegate of the U.S.A. asked that the Programme of Research, as further developed by the Bandung Workshop, be made available to all Member States so as to allow them to consider the implications of the revised programme, before finally approving the revised terms of reference at the thirteenth session of the Executive Council. Resolution XI-11 (SEATAR) was adopted unanimously.

151 The Deputy Secretary drew the attention of the Commission to the close collaboration that had been developed with CCOP/SOPAC, which body will co-sponsor the Second International Workshop on Geology, Mineral Resources and Geophysics in the South Pacific, in Nouméa, New Caledonia, in October 1980.

A.4.4 Regional Association for the Caribbean and adjacent regions (IOCARIBE)

References: resolutions IX-13, EC-XI.4, EC-XI.5; document IOC-XI/12

Dr. R.R. Lankford, Regional Secretary for IOCARIBE, presented his report on the preliminary results of activities of the Association (document IOC-XI/12). He said that progress and development of the Association was gratifying in view of its relatively short existence within its six-year experimental programme period. He did, however, call attention to the fact that the Regional Secretariat was now a one-man operation and that the office efficiency had been further upset by the recent move from Trinidad and Tobago to Costa Rica, as required by the IOCARIBE terms of reference (see resolution IX-13). He also commented on the fact that although support to the Association by Member States had notably improved during the last year, there was nevertheless insufficient funding for all planned IOCARIBE programmes and activities. As a consequence, resolution EC-XI.4 allowed for the establishment of priorities to accommodate funding constraints. Two scientific programmes having high priority (petroleum pollution monitoring and research in support of fisheries projects) were now funded for final planning by their respective scientific co-ordinating groups. 152

He mentioned briefly other activities which were in progress and which included information dissemination on national marine science programmes; on research vessel activities including shipboard training opportunities; on documentation and information services; and on data services and management. The Regional Secretary said that IOCARIBE Member States strongly support the basic tenets of TEMA and have ensured that TEMA is integrated into all IOCARIBE projects. He observed optimistically that IOCARIBE was rapidly coming of age and was now beginning to fulfil its fundamental purposes. 153

Several Member States expressed their appreciation to the Regional Secretary for his report and their gratification that the Association appears to be developing in a satisfactory manner. The delegates of India and Egypt said that although their countries were not from the IOCARIBE region, the experience gained in the Caribbean could well benefit other regions wishing to form similar associations. 154

Regarding shipboard training opportunities, the delegate of the Ukrainian SSR expressed disappointment that there appeared to be decreasing interest in the IOCARIBE region in taking advantage of such training exercises. He urged that the Commission and IOCARIBE develop a stronger programme to promote and enhance these TEMA opportunities. He also called attention to the need to expand oceanographic research in the region, particularly in relation to long-range weather forecasting and storm prediction. 155

The delegate of Mexico and the representative of FAO called attention to the newly established ASFIS centre in Mexico, noting its capability for providing regional documentation and information services. The centre, as part of the Mexican support to the IOCARIBE programme, would be prepared to provide information services to the region as a whole, which offer was welcomed by FAO as the co-ordinating centre for the ASFIS programme. The delegate of Mexico also stated that the new UNAM research vessel, now under construction, would be available for IOCARIBE programmes and that efforts were being made to identify an Assistant Regional Secretary for IOCARIBE. 156

157 The delegate of Costa Rica, speaking as host country of IOCARIBE, said that its government was firmly pledged to provide all necessary support and services to the Secretariat and that it was honoured to provide the Chairman of IOCARIBE.

158 Several countries noted with concern that Member State support was less than desired and needed, this particularly in view of the fact that the Association needed to be self-supporting. It was expected that more wholehearted support would soon be forthcoming.

159 Resolution XI-12 (IOCARIBE Regional Secretariat) was adopted unanimously.

A.4.5 Southern Oceans (SOC)

References: resolution X-12; document IOC-XI/7

160 The Secretary referred to a remark he had inserted in the Annotated Provisional Agenda (document IOC-XI/2), in which he asked for a directive from the Assembly on the need to convene a fourth session of the ICG/SOC in view of the poor past record of the group and the various alternative ways of supporting ongoing activities of Member States in the Southern Oceans through other subsidiary bodies of the Commission.

161 The delegate of the United Kingdom, supported by delegates of the U.S.A. and Belgium, expressed concern that the working paper prepared by the Secretariat in some instances discouraged ongoing activities of the International Co-ordination Group for the Southern Oceans. The Assistant Secretary, whilst acknowledging with gratitude information recently received from Member States which could not be incorporated in the above-mentioned document (e.g. on sea-level data services and Antarctic supply vessel programmes), nevertheless underlined the present position of the Secretariat. This position takes into account the budgetary situation and proposed future activities in the region; namely, that at least for the near future and during the ongoing experiments of the First BIOMASS Experiment (FIBEX) in 1980-1981, the Commission's activities in the Southern Oceans might well be handled better, and certainly more cheaply, by other subsidiary bodies of the Commission, such as WC/IODE, JWC/IGOSS and CCCO.

162 The delegate of Canada, supported by the delegate of Australia, and taking into account the comments of many Member States which wished the present arrangements for co-ordinating IOC activities in this region to continue, suggested that the present terms of reference be reviewed in the light of existing and planned organizational and scientific responsibilities in this region.

163 Emphasizing the necessity of IOC's continuing to be involved in the co-ordination of the scientific programmes in the Southern Oceans, several speakers pointed out, for instance, that:

(i) the extent of the region concerned warranted co-ordination at the intergovernmental level;

(ii) none of the other existing intergovernmental bodies for the Southern Oceans cover as much of the area concerned as the ICG/SOC (even the Antarctic Treaty's concern is limited to the area south of latitude 60°S);

(iii) the last two meetings of the International Co-ordination Group for the Southern Oceans (ICG/SOC) were successful, at least inasmuch as they brought together under intergovernmental auspices interested scientists to consider a common approach to the scientific activities in the region, and it was doubtful that such meetings could have been successfully convened by a non-governmental organization.

On the other hand, the Commission considered that in view of the limited funds available, meetings of the Group should only be convened when there is sufficient business to transact. 164

It was therefore concluded that IOC should continue to be involved in the co-ordination of the scientific programmes of the Southern Oceans by maintaining this Group. However, in view of the revised "Guidelines for the structure and responsibilities of the subsidiary bodies of the Commission" (see item B.6.1 below) its name should be changed to "Programme Group for the Southern Oceans". 165

In view of the fact that some of the present terms of reference may be already out of date, it was decided that the terms of reference be revised. It was pointed out, for instance, that IOC is considering embarking on a climate programme, increasing interest in living and non-living marine resources, etc., and that the new terms of reference should reflect these new involvements and interactions with other subsidiary bodies, especially those concerned with ocean services. 166

The Secretary noted that the task of reviewing the terms of reference for the PG/SOC would be carried out before EC-XIII. If these are approved, the next session of PG/SOC would be held under those new terms. Since the Assembly had already decided that the PG/SOC should meet during 1981, that meeting would, however, take place irrespective of whether the new terms of reference had been agreed prior to the meeting. The Secretary noted the "provisional arrangements" that had been under discussion with the Australian Government for the hosting of SOC-IV during 1980 and indicated that he would be writing to the Australian Government seeking its co-operation in hosting the meeting during 1981. 167

Resolution XI-13 (SOC) was adopted unanimously. 168

The representative of SCAR and SCOR, Mr. G.E. Hemmen, informed the Commission of the progress made by various sub-groups under the SCAR/SCOR/IABO/ACMRR Group of Specialists on Living Resources of the Southern Oceans, in the development and planning of the first experiment within the Biological Investigations of Marine Antarctic Systems and Stocks (BIOMASS). Following the report and conclusions of the recent meeting of this group in Crakow, Poland, 26-28 September 1979, he reported that a good programme called FIBEX (First BIOMASS Experiment), with considerable commitments by Member States as regards research and opportunity vessels, will take place in 1980-1981. The BIOMASS Report series and the Methods series, for the information of participants and participating international organizations, have been brought to the attention of the IOC Secretariat. As regards planning further experiments under the BIOMASS programme, which is intended to last throughout the 1980s, relevant support and co-ordination by IOC and its programmes was felt to be necessary. Resolution XI-14 (FIBEX) was adopted unanimously. 169

A.4.6 *Co-operative Investigations in the Mediterranean (CIM)*

References: resolution EC-X.3;
documents IOC-XI/13 and 13 Add.1

170 Dr. K. Voigt, Assistant Secretary, introduced the Report on discussions with interested Member States on scientific problems in the Mediterranean (documents IOC-XI/13 and 13 Add.1) which had been called for by the Executive Council at its tenth session (resolution EC-X.3).

171 The Secretary then drew attention of the Commission to the fact that by the same resolution, the Executive Council had:

(i) decided in principle, and subject to the concurrence of the other two co-sponsoring bodies, that the International Co-ordination Group (ICG) and the Group for Technical Co-ordination (GTC) of CIM should be abolished; and

(ii) decided further, however, that since not all Member States of CIM are members of the Executive Council, the ICG and GTC of CIM should be kept in abeyance until the eleventh session of the Assembly.

172 He reported that he had been informed by the Secretary of the General Fisheries Council for the Mediterranean (of FAO) that GFCM had never formally agreed to the established mechanism but that it had only declared its readiness to co-operate with the Commission in respective fields of common interest in the area. The other co-sponsor, the International Commission for the Scientific Exploration of the Mediterranean Sea, following discussions at its General Assembly in Antalya, Turkey, December 1978, had formally agreed to the suggested action.

173 In addition to the information provided by Cyprus, France, Canada and the JOC for GARP (document IOC-XI/13) and the USSR (document IOC-XI/13 Add.1), the delegate of Yugoslavia, supported by the delegates of France, Italy and Egypt, identified such activities as the International Bathymetric Chart of the Mediterranean, planning an oceanographic programme under GARP/ALPEX, and the two pilot projects under the Convention on the Protection of the Mediterranean Sea from Pollution, as deserving further support by the Commission.

174 The Acting International Co-ordinator for CIM, Mr. A. Vatrican, in referring to the problems met by the Operational Unit to serve as the present co-ordinating machinery, without sufficient financial support and a clear definition of the oceanographic studies which could be developed and implemented in the interest of several Member States, expressed its understanding of the realistic approach taken by the Executive Council.

175 The delegate of Bulgaria, supported by the delegate of the USSR, suggested, however, that the present mechanism be retained, and presented a draft resolution to this effect for further consideration. The delegate of the USSR brought to the attention of Member States, that out of about 125 research vessel cruises in the Mediterranean during 1971-1975, only 11 had sent data to the Regional Data Centre, WDC 'B', Moscow. He also expressed concern at the reduced activity of the Commission in this region, when other international organizations, such as UNEP and ICSEM, had embarked on a very interesting and indeed necessary oceanographic research activity. He also suggested that the SRB, with the advice of SCOR, should make suggestions as to how to amalgamate existing and planned oceanographic studies

by Member States in the area, and expressed the hope of constructive action by the Commission.

176 The delegate of France, supported by the delegates of the Federal Republic of Germany and Italy, agreed that it is indeed necessary to look for better co-ordination of existing programmes. It was suggested that all available funds allocated for 1980 and 1981-1982 for support for CIM should be used to allow the Operational Unit for the Mediterranean to work more effectively.

177 The delegate of France, supported by the delegates of Egypt, Portugal, Yugoslavia and Tunisia, then spoke in favour of the abolition of the ICG and the Group for Technical Co-operation (GTC) of CIM and the retention of an Operational Unit to assist in the execution of ongoing and future research programmes in the region, particularly in the interests of developing countries. The delegate of France indicated that there was no intention of stopping oceanographic activities in the Mediterranean or to channel funds being devoted to these activities to other programme areas. The intention was, rather, to replace a mechanism for these activities which had proved unsatisfactory with one that could work effectively. The delegate of the USSR, supported by the delegate of Bulgaria, noted the great importance of the Co-operative Investigations in the Mediterranean and spoke in favour of maintaining both the ICG/CIM and the Operational Unit and of providing additional support to encourage the ICG to work better. The representative of UNEP indicated that his agency would continue to be willing to use any structure of CIM that was retained for the execution of appropriate projects in the Mediterranean.

178 After further discussion and a proposal from the delegate of France of a new operative paragraph requesting interested Member States to designate "national correspondents" to liaise with the Operational Unit and the Secretariat, resolution XI-15 (Scientific Investigations in the Mediterranean) as amended was adopted unanimously.

A.4.6.1 International Bathymetric Chart of the Mediterranean (IBCM)

179 The Deputy Secretary reported to the Commission on the outcome of the first session of the Editorial Board for the International Bathymetric Chart of the Mediterranean which was held in the International Hydrographic Bureau, Monaco, 11-14 June 1979. Progress with the chart is satisfactory and, as the Chief Editor had informed the Board, the chart will be published by the Hydrographic Office of the Soviet Union in 1981, on a scale of 1:1 million. The second session of the Board will take place in April or May 1980.

180 A group of experts to develop disciplinary overlay sheets for the IBCM is being formed and will hold its first meeting in 1980; the group will start its work on marine geological/geophysical sheets.

A.4.7 Atlantic-Iberian-African (AIA) region

References: documents IOC/EC-X/3 item 6.2, IOC-XI/7

181 Cdr. J.C. de Ataide, international co-ordinator for the development of a study of the AIA region, introduced a "Status report on planning a project for the Atlantic-Iberian-African region". He informed the Committee that, following the first session of the riparian countries of the AIA region (Lisbon, Portugal, 5-7 June 1978), he had been charged by the management committee to prepare a preliminary inventory of existing research capacities

and definite objectives for co-operation among existing marine research institutions of the region. Taking into account comments received from SCOR in response to a request from the Executive Council at its tenth session (FAO, Rome, June 1978) to evaluate the proposal for a co-operative study in the region, he emphasized that work has been concentrated on the identification of applied oceanographic research objectives within marine ecosystem research and of monitoring studies planned in the area between the Azores and the Cape Verde Islands. Although priority has been given to living resource aspects, the programme being developed will also cover environmental protection and climate-related research and monitoring activities.

182 In the following discussion, the representatives of Portugal, Belgium, USSR, Morocco, U.K., Chile and the Ukrainian SSR expressed interest in and offered support for the further development of the project. The delegate of Senegal also expressed interest but felt that, at the present time, it would be unrealistic for countries of the Atlantic coast of Africa to envisage any effective participation in the projects. In addition to advice from ACMRR, the representative of FAO offered the assistance of the FAO Fishery Committee for the Eastern Central Atlantic (CECAF) in the evaluation and planning of the project, of which, according to the present outline, about 30 per cent is closely related to fisheries.

183 Comments made and questions put to the AIA international co-ordinator concerned the following: definition of data processing needs for envisaged model studies of the circulation system; requirements for training and education in the marine sciences for oceanographic institutions under development in the region; and consideration of a possible co-ordinating mechanism. This last point is especially pertinent since, as several speakers observed, this kind of programme will also be of importance for countries from outside the region.

184 Cdr. de Ataide expressed thanks for the offers of support which will encourage the riparian countries to develop this project further. He then presented to the Commission his financial requirements to expedite the present study project and to develop it into a detailed proposal.

185 The resolution on the Oceanographic Study of the AIA region gave rise to some discussion on its relationship to resolution XI-18 (Marine Science Co-operation on the Atlantic Coast of Africa) - (see item A.4.8 below). The AIA international co-ordinator noted that there was no contradiction between the "philosophies" embodied in the two resolutions but rather in the approach. This resolution should lead to the initiation of a programme whereas resolution XI-18 looked to the eventual creation of an IOC Subsidiary Body for the region. The delegate of Senegal, while agreeing that there was no contradiction between the two resolutions, stated that, in his opinion, the programme activities envisaged in the draft resolution under consideration were premature given the state of oceanographic expertise actually existing in many of the countries of the region. After further discussion, an acceptable formula was found and resolution XI-16 (Oceanographic Study of the AIA region) as amended, was adopted unanimously.

A.4.8 Ocean Sciences in relation to Living Resources

Reference: document IOC-XI/20

186 The delegate of the U.S.A. introduced document IOC-XI/20 "Ocean Sciences in relation to Living Resources". He recalled that this was not a new direction of work for the Commission but that the topic had received special

attention in the considerations of the Working Group on the Future Role and Functions of the Commission in discussions on the directions for its future programme, and in the identification of programmes of greatest benefit to developing countries.

Referring to the very recent scientific conclusions in the literature on environmental impact, long-term changes in the ocean environment particularly on fish stocks, fishing effort and fishery management, he called for the active collaboration of FAO to establish, with IOC, an appropriate mechanism to develop a programme and define specific projects in this field of the Commission's activities, inviting also the Commission's advisory bodies, SCOR and ACMRR and their working groups, to address this topic. 187

The representative of FAO, in pointing out the substantial recent shift of emphasis in the work of his organization to the field of legal, administrative and management studies in support of fishery activities of Member States under the new regime of the exclusive economic zones, welcomed in principle the proposed programme development. However, he emphasized the need to make a clear distinction between that part of such a programme which is concerned with basic oceanographic research related to fisheries, under IOC guidance, and the aspects of rational management and development of fisheries, which are the responsibility of FAO. He remarked that the programme proposals contained in document IOC-XI/20 had substantial implications for the FAO's activities and would be brought to the attention of the governing bodies of FAO. He also indicated that he had suggested an amendment to the first operative paragraph to substitute the term "fisheries" for "fish stocks". However the Commission did not accept this amendment. 188

In the discussion, the delegates of the Philippines, Kenya, Egypt, Norway, Argentina and India fully supported the general idea contained in document IOC-XI/20, as proposed by the U.S.A. The speakers expressed the view that such a programme has to be an integrated project of the organizations concerned from the very beginning. Dr. L. Arriaga (CPPS), Scientific Secretary of the Estudio Regional del Fenómeno "El Niño" (ERFEN), expressed the extreme interest of the ERFEN countries in co-operation between FAO and IOC in the assessment of the impact of observed marine environmental variation associated with "El Niño" on the fish stocks of the ERFEN region. 189

The delegate of Nigeria was especially anxious that the guidelines to be published incorporate methods by which the specific TEMA needs of developing countries could best be met. 190

Resolution XI-17 (Ocean Sciences in relation to Living Resources), as amended, was adopted unanimously. 191

The delegate of Senegal, supported by the delegate of Gabon, also underlined the great importance of document IOC-XI/20. However, he felt that in many developing countries because of the lack of national scientific expertise in this direction of the Commission's future activities, there is understandable difficulty in relying fully on foreign expertise in the field of environmental impact on fish stocks under national responsibility. As a co-sponsor of the draft resolution on Marine Science Co-operation on the Atlantic coast of Africa, he explained that the purpose of the workshop envisaged in the resolution was to enable the regional countries concerned to develop a minimum form of organization and to arrange a minimum training programme which would enable them to participate in wider oceanographic activities. 192

193 The delegate of France stressed the importance of further development of the Commission's programme in this field.

194 Resolution XI-18 (Marine Science Co-operation on the Atlantic coast of Africa) was adopted with one abstention (Spain).

195 The delegate of Egypt, referring in general to the report of Committee I, noted that the region of the Gulf and the Red Sea received little attention in the Commission's present activities. He expressed the hope that the Commission would attach greater importance to these areas in the future.

B.4.2 Ocean Services

B.4.2.1 Statement by the Second Vice-Chairman on intersessional activities

196 Professor Dr. Czeslaw Druet, Second Vice-Chairman, reported on his intersessional activities. He recalled that his duties between December 1977 and October 1979 had been to:

study and supervise all IOC activities connected with Ocean Services;

ensure that the tasks assigned to the Subsidiary Bodies of the Commission for Ocean Services by the tenth session of the Assembly and the subsequent sessions of the Executive Council were followed up;

represent the Commission at the Third United Nations Conference on the Law of the Sea and also at the 67th Statutory Meeting of the International Council for the Exploration of the Sea;

participate in the work of the Working Group on the Future Role and Functions of the Commission and the Planning Team for the Programme Forecast 1981-1982.

197 He drew the attention of the Assembly to developments that had taken place, especially in IGOSS and IODE over the last two years. The Joint IOC/WMO Working Committee for IGOSS had been established by the Assembly at its tenth session and its first session had been held in September 1978. This had led to close collaboration with WMO and also with Mr. Y. Treglos, Chairman JWC/IGOSS. During this period IGOSS had concentrated on:

development and expansion of the BATHY/TESAC Operational Programme, particularly in connection with the FGGE;

implementation of the IGOSS Marine Pollution (Petroleum) Monitoring Pilot Programme (MAPMOPP);

planning of the IGOSS Data Processing and Services System (IDPSS);

consideration of ways and means of strengthening assistance to developing countries within the framework of IGOSS.

198 He emphasized the considerable progress that has taken place with the IGOSS General Plan and Implementation Programme, in particular the input that had been provided to regional and global operational research projects such as POLYMODE, FGGE, COST-43, WESTPAC and the Flemish Cap Experiment.

During the intersessional period, the ninth session of the Working Committee on IODE had been held in January 1979. The biennium has shown a considerable expansion of the Commission's activities in regard to data archiving and exchange, particularly with the new concept of Responsible National Oceanographic Data Centres (RNODCs) for specific regions or parameters and in the field of Marine Information Management. 199

High priority was being given to the need to strengthen and intensify three IODE programme elements: ASFIS, TEMA and Climate. 200

Satisfactory developments had taken place in the International Tsunami Warning System in the Pacific (ITSU) and more funds were being sought for these activities. 201

B.4.2.2 Report of Committee II - Ocean Services

The report of Committee II (item A.5) was submitted to the Plenary and approved with a few minor amendments: 202

A.5.1 Integrated Global Ocean Station System (IGOSS)

References: resolutions EC-X.5, EC-X.11, EC-XI.1, EC-XI.10, EC-XI.11, EC-XI.12;
documents: IOC-XI/9, IOC-XI/18, IOC/INF-404, IOC Technical Series no. 16

Dr. A. Tolkachev, Assistant Secretary, presented the documentation for discussion and briefly reviewed the progress in IGOSS programme development since the tenth session of the IOC Assembly. 203

In accordance with the decisions of the first session of JWC/IGOSS, approved by the eleventh session of the IOC Executive Council (resolution EC-XI.11) and the XXXIst session of the WMO Executive Committee (Resolution 7(EC-XXXI)), particular attention has been paid to: 204

further development and expansion of the BATHY/TESAC Operational Programme, particularly in connection with FGGE;

implementation of the IGOSS Marine Pollution (Petroleum) Monitoring Pilot Project;

planning of the IGOSS Data Processing and Services System (IDPSS);

preparation and dissemination of IGOSS products in support of scientific experiments such as FGGE, POLYMODE, etc.;

consideration of the ways and means to strengthen the assistance to developing countries within the framework of IGOSS.

As recommended by the JWC/IGOSS, Member States of IOC and WMO have been requested to designate National Representatives for IGOSS and nominate experts for newly established Sub-groups of Experts (see Joint CL no. 79-51, dated 28 February 1979, 79-56 and 79-57 dated 27 and 24 August 1979 respectively). 205

Mr. Y. Treglos, Chairman of the Joint Working Committee for IGOSS, pointed out that the value of IGOSS was demonstrated in the First GARP Global Experiment. He also noted that the Guide on IDPSS, recommended by 206

the Workshop on Oceanographic Products and IDPSS (April 1979) will include a description of requirements for IGOSS services. Mr. Treglos stressed that the progress in IGOSS depends on national participation, and that more emphasis should be given to the TEMA components of IGOSS in order to involve developing countries in the operational programmes of IGOSS. More efforts should be devoted to the development of documentation needed for IGOSS, including various guiding and planning material.

207 The representative of WMO informed the Commission that participants at the Eighth Congress of WMO had supported the joint activities of WMO and IOC in the further development of the IGOSS programme and requested members to participate actively in all or any parts of the basic elements and programmes of IGOSS. In this connection he made reference to Resolution 13 (Cg-VIII) of the Eighth Congress of WMO and Resolutions 7 and 8 of the XXXIst session of the WMO Executive Committee (see document IOC-XI/9).

208 The Commission noted with satisfaction the close co-operation between the IOC and WMO Secretariats on the IGOSS programme.

209 Dr. C.R. Mann, Chairman of the Scientific Advisory Board, presented the Executive Summary and recommendation of the Scientific Advisory Board's review of IGOSS (document IOC/INF-404). He stated that SAB had been encouraged by the directions IGOSS was taking in the development of its programme. The new services provided to the Expanded Mid-Ocean Dynamics Experiment (POLYMODE), the Flemish Cap Experiment and the First GARP Global Experiment (FGGE) were clear demonstrations of the type of contribution which IGOSS could make to scientific research. In addition SAB felt that the emphasis which IGOSS was giving to regional projects and services in the development of its global programme was very important.

210 The importance of the Joint IOC/WMO Seminar/Workshop on Oceanographic Products and the IDPSS (Moscow, April 1979) was also pointed out by SAB. The attention of the Commission was drawn to the recommendations made by SAB on IGOSS. In particular SAB had recommended that action be taken:

to arrange for the preparation and issue of a quarterly IGOSS newsletter, in order to disseminate further information about IGOSS and, if this could not be done, to improve the distribution of the IGOSS Programme Information Circulars (PICs);

to continue the global development of IGOSS, through regional or selected ocean area projects and to request the Chairman of the JWC for IGOSS to arrange participation of IGOSS (e.g. by the IGOSS Operations Co-ordinator) in planning meetings for regional programmes;

to participate actively in the proposed World Climate Programme and to ensure close association with the development of the programme. In this regard, co-operation with the Joint SCOR/IOC Committee on Climatic Changes and the Ocean (CCCO) will be essential.

211 The Commission acknowledged the recommendations of SAB. Regarding the "regional approach" of IGOSS, the importance was noted of these regional or selected ocean area activities as contributions to the global objectives of IGOSS.

212 Mr. R.C. Junghans, IGOSS/TEMA Co-ordinator, pointed out the importance of further development of the TEMA component of IGOSS in order to enable

developing countries to participate actively in IGOSS programmes and projects. He emphasized that the most important step now is to endeavour:

(a) to encourage Member States to place on record their desire to become involved in IGOSS activities; and

(b) to identify specific - country by country - training requirements in the conduct of the projects in which they will participate.

In this connection, the importance of direct communication with developing countries was emphasized in order to identify the requirements for assistance which can be provided within the framework of IGOSS using various funding sources, the IOC-VAP in particular. Mr. Junghans drew attention to the mission of an IGOSS consultant, Capitán de Navío A.J. Gil Villanueva (Argentina) to Ecuador, Colombia, and Trinidad and Tobago in 1978. The Commission considered it highly desirable to arrange further similar missions of IGOSS consultants in other regions. 213

The Commission noted further with satisfaction the support that had been provided to a number of developing countries within the framework of the IGOSS Pilot Project on Marine Pollution (Petroleum) Monitoring (e.g. provision of instruments, training courses, etc.). 214

The Commission also acknowledged with appreciation the support that had been provided by the U.S.A. in the preparation of the IGOSS Brochure. It was noted that this brochure would shortly become available in four languages and it was recommended that it be given wide distribution. 215

The co-sponsorship of IGOSS by WMO was noted with appreciation. The Committee acknowledged the strong support given to the IGOSS programme, particularly by the last session of the WMO Executive Committee. 216

The important role of many meteorological services in providing oceanographic and marine meteorological services was acknowledged. It was hoped that the excellent co-operation between the IOC and WMO Secretariats would be continued. 217

A discussion was held on the structure of the IGOSS Sub-group of Experts. Although there were some doubts as to whether the present arrangement was the best that could be devised, it was recommended that the existing framework for the newly created Sub-group of Experts should remain unchanged for a few years. However, in view of the upcoming second session of the Joint Working Committee for IGOSS in October 1980, the Committee stressed the urgency, to the Chairman of the JWC for IGOSS and the Secretariats of IOC and WMO, of identifying specific tasks for these Sub-groups and initiating them as soon as possible. 218

The Commission reviewed the budget priorities and supported fully the activities proposed. It was hoped that funding could be found for all these activities. With regard to the IGOSS budget and in recognizing that IGOSS is a joint IOC/WMO programme, the Commission recommended that the Joint Working Committee for IGOSS, at each biennial session, establish a list of priorities for its tasks, for approval by the governing bodies. The Commission noted with appreciation the equivalent participation and contribution of WMO to the IGOSS programme. 219

220 Resolution XI-19 (IGOSS), which also covers matters discussed under items A.5.1.1 and A.5.1.2 below, was adopted unanimously with the addition of a new subparagraph, proposed by the delegate of the USSR, to the effect of requesting the Joint IOC/WMO Working Committee for IGOSS to consider the establishment of an international observation network of stations on the basis of the use of drifting automated buoys as one of the main components of IGOSS.

A.5.1.1 IGOSS Observing System (IOS)

References: resolutions EC-X.5, EC-X.11, EC-XI.1, EC-XI.10, EC-XI.11 and EC-XI.12; document IOC-XI/18

221 Mr. G.W. Withee, Assistant Secretary, introduced this item by drawing attention to the principal observational programme of IGOSS, the BATHY/TESAC Operational Programme. He cited the incorporation of this programme - its procedures for taking, coding and exchanging these observations via the Global Telecommunication System of WMO - into research and operational, regional and global programmes, including: POLYMODE, FGGE, COST-43, WESTPAC and the international Flemish Cap Experiment. Future efforts would include emphasis on the incorporation of new measurement technologies into the observational programme, including satellites and drifting buoys. The Assistant Secretary cited the continuing growth of the BATHY/TESAC Operational Programme in every programme category, including observational platforms (ships and buoys), data exchanged and participating Member States. Concerning support provided to the operational programme of IGOSS, he cited the secondment by the United States of an IGOSS Operations Officer, Mr. Robert E. Hunt, to the IOC and WMO Secretariats.

222 In recognizing the importance of drifting buoys to the IOS, the Commission supported fully the decision of the IOC and WMO Secretariats to organize a meeting to discuss drifting buoy programme co-ordination in Geneva, in December 1979. The Commission wished to encourage Member States to provide IGOSS representation at this meeting.

223 The Commission noted with appreciation the progress of the BATHY/TESAC Operational Programme, but drew attention to problem areas that would have to be worked on in the future, such as data quality and standardization of measurements. It was stressed that specific operational instructions for the BATHY/TESAC programme must be developed and provided to Member States. It also noted that substantial progress had already been made, in particular on data quality.

224 The Commission noted that the development of IOS could best be made through its incorporation into regional programmes and specific long-term programmes such as climate. In this connection the delegate of the USSR drew the attention of the Commission to the need to establish a permanent system of regional and global oceanographic observations on a regular basis with specifically indicated contributions from Member States.

225 In reference to satellite observations of the oceans which can be considered as a part of IOS, the importance of satellite derived sea surface temperature measurements was noted, and the Commission recommended that the Chairman of the Joint Working Committee for IGOSS be requested to arrange for a study to be carried out on the preparation of proposals for exchanging these measurements.

The Commission stressed the obvious importance of real-time observations under the IOS, but also noted the importance of those observations not sent via real-time (GTS) channels. In view of this, the Commission encouraged Member States to arrange for those measurements not sent in real-time to be submitted by mail in accordance with agreed procedures within IGOSS. 226

Concerning the necessary development of IOS, the delegate of Norway suggested that the development must occur by collaborative action by Member States, such as is being done within COST-43 in establishing a buoy observation system for western European waters. 227

Climate Monitoring

Dr. C. Druet, Second Vice-Chairman, noted that the data monitoring requirements for various programmes on climate may need to use the operational data gathering and product exchange mechanisms of IGOSS. He introduced Professor R. Revelle, Chairman of the Joint SCOR/IOC Committee on Climatic Changes and the Ocean (CCCO) to lead a discussion on this item. 228

On behalf of CCCO, Professor Revelle concentrated his remarks on the oceanographic data monitoring requirements for climate studies. He stated that the forecasting of the weather or climate for periods of a few weeks and longer will require real-time observations (exchanged within a period of a few days) of certain oceanographic parameters, notably surface and sub-surface sea temperature, currents and sea level. He stated that once the precise requirements are defined, CCCO will undoubtedly request IGOSS participants, through the Joint Working Committee for IGOSS, to implement these observations. 229

Dr. Revelle pointed out that climate monitoring requirements will provide a great challenge to IGOSS, particularly with respect to data quality of transmitted measurements; standardization of measurements; timeliness of data received; improvement of accuracy of measurements, especially sea surface temperature; automation of observation and reporting, and integration of new technologies into the IGOSS Observing System, including satellites and drifting buoys. He also expressed the view that developing countries would surely benefit from these monitoring activities, since these programmes would necessarily occur in every ocean region in the world and, notably, in the tropics. The full text of Professor Revelle's remarks is given in Annex III. 230

The Commission stressed the importance of the ability of IGOSS to support the types of climate monitoring activity described by Professor Revelle, and noted in particular that, as Chairman of CCCO, he had essentially discussed the elements of particular relevance to IGOSS of the envisaged monitoring programmes in support of climate. In view of this, it was decided that, with the agreement of Professor Revelle, a summary of his presentation would be given wide distribution so that all IGOSS participants could be informed of the types of up-coming requirements from the CCCO. 231

Concerning the automation of measurements, the Commission noted that much work was being carried out in this area by Japan, U.S.A. and others, as summarized in the report of the first session of the Joint IOC/WMO Working Committee for IGOSS. 232

The Commission recognized that, in order to provide the two-week and longer forecasts as required by the climate programme, oceanographic data 233

will have to be supplied in near-real-time (a few days) and therefore, in this context, the climate monitoring requirements as outlined by Professor Revelle seemed ideally suited for IGOSS. The Commission also recognized the non-real-time requirements of the climate programme for research purposes. These requirements must be dealt with by the Joint Working Committee for IGOSS in conjunction with the Working Committee on IODE.

234 It was stressed that, for reasons of economy, Member States should be encouraged to use the services that already exist within IGOSS to the maximum extent possible when supporting proposals such as that for climate monitoring.

A.5.1.2 IGOSS Data Processing and Services System (IDPSS)

References: resolutions EC-XI.10, EC-XI.11, EC-XI.12; documents IOC-XI/9, IOC-XI/18

235 Mr. G.W. Withee, Assistant Secretary, introduced this item by calling attention to the fact that the IGOSS programme had been established to provide oceanographic services, in the form of data and data products, to Member States. Thus, IDPSS is an essential element of IGOSS. He outlined the growth of oceanographic products and services provided by Member States over the past few years, and cited in particular the IGOSS oceanographic products supplied for POLYMODE and FGGE, and the on-going IGOSS products being supplied in support of the Flemish Cap Experiment. He also referred to the Joint IOC/WMO Seminar/Workshop on Oceanographic Products and the IGOSS Data Processing and Services System (Moscow, 2-11 April 1979). This Seminar/Workshop represented a major step in identifying the requirements for oceanographic services which should be considered within IGOSS. The Assistant Secretary also referred to the development of an IDPSS Guide for IGOSS. Future activities will include the further development of products and services on a regional as well as a global basis, as well as the development of the required Manuals and Guides to deal with IDPSS.

236 The Commission approved the development of IDPSS through regional and specific long-term programmes, such as WESTPAC, which will have a long-term need for oceanographic services. Concerning the regional development of IDPSS, the delegate of Belgium introduced the concept of three types of pilot regions: regions surrounded by developed countries; regions in which both developing and developed countries could play a part; and remote regions such as the Antarctic. It was decided that the further development and use of this regional concept should be deferred for study by the Joint Working Committee for IGOSS.

237 The Commission acknowledged the success of the above Joint IOC/WMO Seminar/Workshop. In noting the value of such workshops, the Commission recommended that more such workshops on IDPSS and user requirements should be planned, particularly on a regional basis. These workshops could be concerned with such user oriented subjects as: climate products; ocean products for fisheries; transportation and regional products such as for WESTPAC, CINCWIO or IOCARIBE.

A.5.1.3 Marine Pollution (Petroleum) Monitoring Pilot Project (MAPMOPP)

References: resolutions VIII-20, IX-27, EC-XI.11; document IOC-XI/18

238 Dr. L. Andrén, Assistant Secretary, highlighted the latest developments related to the project.

Referring to the plans for holding a Third IOC/WMO Workshop on Marine Pollution Monitoring (New Delhi, 11-15 February 1980) and for transforming the project into a Marine Pollution Monitoring Programme (MARPOLMON) by July 1980, he indicated the need for clarification and instructions from the Assembly on several points, especially bearing in mind the decision that supervision of the project be transferred from JWC/IGOSS to WC/GIPME (see resolution XI-6). 239

The delegates of Belgium, U.S.A. and the United Kingdom supported, at least in principle, this decision. Some concern was however expressed as to the problems caused by the transfer, such as: possible difficulty in maintaining continuity in reporting from participants (e.g. meteorologists normally corresponding with or through WMO) and the need to ensure adequate and continuing expert advice and surveillance. The delegate of Canada, concurring with other delegates, expressed satisfaction with the progress of MAPMOPP and supported the proposal that several new methods should be included and new areas covered. The delegate of the United Kingdom declared that his country would be unable to participate in MARPOLMON. 240

This matter was also discussed under item A.3.4.1 (see above). 241

A.5.2 International Oceanographic Data Exchange

References: resolutions EC-X.6, EC-X.13, EC-XI.2, EC-XI.14; documents IOC/EC-XI/14, IOC-XI/19 and 19 Add. 1, IOC/INF-399, IOC/INF-405, IOC/IODE-IX/3, IOC Manuals and Guides no. 91

Dr. A. Tolkachev, Assistant Secretary, reviewed the relevant documentation for discussion under this item. He then introduced document IOC-XI/19 which provided information on the major IODE activities since the tenth session of the IOC Assembly. 242

The major task of the Working Committee on IODE is to promote the exchange and archiving in the World Data Centres of oceanographic data and, through both national oceanographic efforts and all marine programmes sponsored or supported by the United Nations Specialized Agencies, to develop standard forms and procedures for exchange of various types of oceanographic data, and to assist in the development of National Oceanographic Data Centres. In addition the Working Committee promotes the facilitation of exchange of information. 243

Attention of the participants was drawn to the report, entitled "Status of International Oceanographic Data Exchange" (document IOC/EC-XI/14) prepared by the Director of WDC-A (Oceanography) in response to resolution EC-X.13. This report provides information on the activities of IOC in the field of international oceanographic data exchange since the first session of IOC (October 1961); statistics on the volume of data exchanged since the inception of the WDC system; and identification of problems and areas to which the WC/IODE should pay particular attention. 244

Among the major achievements and subjects, as discussed at the ninth session of WC/IODE, in January 1979 (document IOC/IODE-IX/3), the following were pointed out: 245

Approval of the IOC General Magnetic Tape Format (GF-3) for international exchange of oceanographic data. The technical specifications for GF-3, prepared with the help of experts from the United Kingdom,

Federal Republic of Germany, Canada and U.S.A., will be published as an Annex I, Part 1 to the Manual on International Oceanographic Data Exchange (IOC Manuals and Guides no. 9).

Establishment of the Group of Experts on Format Development.

Successful development of the RNODC scheme. A number of NODCs has already started implementing functions as RNODCs (IGOSS BATHY/TESAC - NODCs of Japan, France, U.S.A., USSR; IGOSS MAPMOPP - NODCs of U.S.A., Japan; Wave Data - NODC of U.K.; FOY - NODC of U.S.A.; WESTPAC - NODC of Japan). The Group of Experts on RNODCs which met in September 1979 in Tokyo agreed to prepare a Guide on RNODCs. A brochure on RNODCs, prepared by the Group of Experts, would shortly be circulated to Member States.

Following the discussions which took place at the tenth session of the IOC Assembly regarding the exchange of data resulting from the projects under the UNEP Co-ordinated Mediterranean Pollution Monitoring and Research Programme, the WC/IODE in its recommendations urged all Member States and international organizations dealing with marine environmental programmes to use the internationally agreed upon principles and procedures of IOC and to ensure maximum possible availability of such data through the WDCs. As stated by the Assistant Secretary, these recommendations, endorsed by the Executive Council, should be brought by Member States of IOC to the attention of national authorities participating in the activities of international organizations involved in the study of the marine environment.

The ninth session of WC/IODE recommended certain actions aimed at strengthening co-operation between IOC and WMO in the field of marine environmental data management. In response to this recommendation, a Joint IOC/WMO Informal Planning Meeting was organized in September 1979 in WMO Headquarters at which certain actions were recommended aimed at co-ordinating marine environmental data management activities in support of air-sea interaction programmes.

The WC/IODE at its ninth session urged Member States to submit on a more regular basis information on DNPs/NOPs. It was noted that still only a very small proportion of IOC Member States provide this information regularly. The Commission was informed that a brochure on DNPs/NOPs had been prepared and would shortly be circulated to Member States.

246 The WC/IODE had made recommendations on the steps aimed at facilitating access to, and exchange of remotely sensed data, marine biological data, marine pollution data, and marine geological/geophysical data.

247 The report of the ninth session of WC/IODE had been reviewed and its recommendations approved by the Executive Council, at its eleventh session.

248 Mr. T. Winterfeld, Chairman of WC/IODE, pointed out that the progress achieved in IODE has been mainly due to active support and contributions by Member States to WC/IODE activities during the intersessional period. In many cases, the IODE experts/rapporteurs worked at their government expense and a minimum number of experts were paid for from the IOC budget. He also noted that through national initiatives in 30 countries, NODCs and DNAs have been established. These centres, as well as other Member States without data centres, maintain close contact with WC/IODE through the system of national co-ordinators for IODE.

Mr. Winterfeld also drew the attention of the Commission to the following: 249

Development of the BIOMASS programme called for more active participation by WC/IODE in the field of marine biological data. The WC had designated a rapporteur on this subject who is the IOC member of the SCAR/SCOR/IABO/ACMRR (BIOMASS) Technical Group on Data, Statistics and Resource Evaluation. He attended the first meeting of the group in May 1979.

Proposals had been made at the first session of the SCOR/IOC Committee on Climatic Changes and the Ocean (CCCO) (Miami, U.S.A., 8-10 October 1979), in relation to oceanographic atmospheric data required for research, forecasting and modelling of climate. The Chairman WC/IODE had attended this meeting and informed the CCCO on climate-related activities and plans in WC/IODE. The CCCO emphasized that special efforts are also necessary to standardize, compile and retrieve ocean data for climate research and extended range forecasting and acknowledged existing and ongoing IOC activities in developing the IODE system.

Need for close liaison with IOC regional activities which will have specific data requirements.

Need to develop expanded and modernized arrangements for the exchange of sea level data.

The Chairman of the IOC Scientific Advisory Board, Dr. C.R. Mann, presented the document "Scientific Advisory Board Report on the Review of International Oceanographic Data Exchange" (document IOC/INF-405). The Board had expressed its concurrence with the aims, objectives and specifics of the Commission's ongoing activities on data exchange and information management. The Board had recommended to the Executive Council that high priority status be assigned to all IODE activities and emphasized the need to strengthen and intensify three programme elements of the IODE: ASFIS, TEMA and Climate. In particular the WC/IODE was requested: 250

to continue to strengthen support for ASFIS,

to seek ways and means by which training in data processing, data management and information services can be provided as a contribution to the IOC's overall TEMA activities;

to work closely with SCOR and WMO to determine what kinds of data are required (and in what form) from data banks and ongoing programmes for climate studies, and to identify all available long-time series of various types of marine data.

The SAB had also recognized the important role of the Permanent Service for Mean Sea Level (PSMSL) in providing monthly sea level data on a global basis and had recommended to the Executive Council that positive steps be taken to continue financial support for PSMSL activities. 251

The Secretary, in commenting on the latter recommendation of SAB, explained that at present the support from Unesco comes from two sources - through FAGS/ICSU and through IOC. He noted that an amount of $10,000 per year would be required in future, in order to ensure continued support. 252

253 The Director WDC-A noted the successful development of the WDC Oceanography system in the past decade. He noted that present trends towards bilateral, multilateral and international co-operative programmes are making scientists rely increasingly on data collection by others. The need for development of methods and formats for the ever-growing volume of data from automatic electronic instrumentation, and data resulting from biological and chemical pollution studies, was also pointed out.

254 The delegate of Norway, noting the co-operation between IOC and WMO in the field of marine environmental data management, emphasized the need for close collaboration between national oceanographic and meteorological authorities and organizations concerned, in order to make co-operation between the two organizations more effective.

255 The representative of WMO noted the importance of IODE activities for all research and monitoring programmes related to the marine environment. He made reference to the recent Joint WMO/IOC Informal Planning Meeting on Marine Environmental Data Management and emphasized the need for further strengthening of co-operation between WMO and IOC so as to ensure the most effective use of marine environmental data by both the oceanographic and meteorological communities.

256 The representative of Belgium expressed his delegation's support to a number of recommendations of the ninth session of the WC/IODE. In particular he emphasized the maximum use of the IODE system for data collection and services (recommendation IODE-IX.1); maximum possible availability of marine pollution data through the WDC system (recommendation IODE-IX.2); adoption of the IOC General Format GF 3 for international exchange of various types of data (recommendation IODE-IX.6); and increased submission of information through DNPs/NOPs.

257 The representative of FAO, in response to a number of inquiries from delegates from developing countries regarding fishery data, explained that FAO operates a Fishery Data Centre, which holds data on fish stock assessment, catch monitoring, and levels of pollutants in marine organisms. This Centre maintains and updates a computerized data base so as to provide services in the form of regular publications or, upon specific request, special outputs can be prepared.

258 The Chairman of the Working Committee on IODE pointed out that over the years much of IOC's activities had been directed towards TEMA (e.g. preparation of various guides and manuals, in particular the Guide for Establishing an NODC and the planned Guide on oceanographic data processing; training courses; provision of advice on the establishment of data centres; etc.). At the ninth session of WC/IODE, an IODE/TEMA Co-ordinator was appointed (Dr. V.S. Bhatt, India), who had prepared a report for the IODE session highlighting the specific requirements of developing countries related to TEMA in the field of oceanographic data management.

259 The Commission felt that future efforts in this area should be devoted to the following:

compilation of training documents and manuals on data archiving, storage, processing, etc.;

training of specialists from developing countries involved in the operation of data management systems IOC-VAP donor countries;

bilateral training arrangements. In this case, the IOC, if invited, should provide advice on guidelines, formats and procedures developed by WC/IODE;

provision of advice/assistance on the operation of small or emerging data centres in developing countries.

The Commission noted that further clarification of the role of the TEMA Co-ordinator for certain IOC projects or programmes, and his interaction with overall IOC/TEMA activities, is required, and that the activities of such a co-ordinator will require financial support from IOC. 260

The delegate of the Federal Republic of Germany, speaking on behalf of his government, offered to host (in Hamburg) the tenth session of the IOC Working Committee on IODE as scheduled during 1981. 261

Resolution XI-20 (IODE) was adopted unanimously. 262

A.5.2.1 Aquatic Sciences and Fisheries Information System (ASFIS)

References: resolution IX-21;
document IOC-XI/9

Mr. T. Winterfeld, Chairman WC/IODE, and Mr. E. Akyüz (FAO) made presentations on the objectives of ASFIS as a Joint FAO/IOC/UN(OETO) Programme, its present development and services provided by the system to Member States. ASFIS - an international system for the exchange and transfer of marine science and technological information - has been developed with the active participation of Member States (Canada, France, Federal Republic of Germany, Japan, Mexico, Portugal, USSR, United Kingdom and U.S.A.). It provides various information products and services to scientists, technologists, administrators and legislators with interest in marine and freshwater ecosystems and environments. 263

Advice on ASFIS development was provided by the Panel of Experts on ASFIS. The Commission noted that for financial and staff reasons the IOC had not achieved the expected level of participation and contribution to ASFIS. The major operational functions have been carried out by FAO. IOC was primarily responsible for supporting the action which ultimately led to the provision of resources support from UNEP; provision of marine information advisory services to Member States; and promotion of the development of a global network of ASFIS Centres and Referral Offices. 264

The Commission realized that IOC, with very limited financial resources, cannot undertake operational functions required for the development of ASFIS. Therefore it was agreed that while primary responsibility for operational functions will continue to be carried out by FAO, the Commission should continue to play its catalytic role as an advisory and co-ordinating body. 265

At the same time the Commission emphasized the important and growing role of ASFIS in dissemination and exchange of marine scientific information and other relevant information of great value for both national and international activities in the field of the marine environment. 266

Mr. S. Tibbitt, Assistant Secretary, informed the Commission that within the limits of the present IOC budget and staff, the IOC had participated in the ASFA Advisory Board by providing advice that was instrumental in extending the ASFA coverage into oceanography, marine technology, marine 267

policy, etc. The Commission will sponsor, with FAO and UNEP, a Training Seminar/Workshop to be held in Colombia in December 1979. IOC has provided limited input to ASFA and several registers of ASFIS and hopes to increase its level of ASFIS participation in the future.

268 In response to a question from the delegate of the Philippines concerning input to ASFIS of published information, the representative of FAO explained that regional approaches are being developed to ensure coverage and input to ASFIS of specialized sources and types of information by national centres (e.g. Japan, Mexico) and specialized input centres being developed (e.g. SEAFDEC). The delegate of Gabon expressed his support of the regional efforts in SEAFDEC and in the Caribbean and expressed a desire to see something similar developed in the Gulf of Guinea. He invited the Commission to encourage active participation of Member States in ASFIS regional efforts in the Gulf of Guinea, with a view to the establishment of ASFIS centres in this region.

269 Mr. Akyüz outlined the strategy of FAO that Member States of a region should be involved in determining the establishment of a regional centre, provision of training for those involved and creation of an infrastructure to support operation of an aquatic science programme.

270 Resolution XI-21 (ASFIS) was adopted unanimously.

A.5.2.2 Marine Environmental Data Information Referral System (MEDI)

References: resolution IX-30;
document IOC-XI/19

271 Mr. J. Churgin, Chairman of the Group of Experts on the Marine Environmental Data Information Referral System (MEDI), presented his report. He first reminded the delegates that MEDI had been planned not only as a multi-disciplinary, multi-agency, multinational system, but it also is a multi-purpose system. That is, it was designed so that on one level it may be used in the form of a printed catalogue, indexed by parameter and geographic area and distributed to MEDI centres around the world, and on another level it is a computerized information system capable of searching and sorting a complex set of variables and producing output tailored to the needs of a marine programme. He noted that the printed catalogue might be especially useful to marine environmental scientists in developing countries who have a need to determine easily and quickly whether data are available, what form they are in, and how they may be obtained. He further noted that MEDI could provide valuable information to many disciplines, such as bathymetry, meteorology (including climatology), fishery statistics, pollution, and marine physics, chemistry, biology, geology and geophysics.

272 Mr. Churgin referred to the accomplishments listed in document IOC-XI/19. He stated that this list was substantially correct; the MEDI Catalogue I and the MEDI Brochure would be given wide distribution and should help considerably to expand both the size of the data base and users of the system. These accomplishments had not been achieved without difficulty. In his opinion the major problem facing MEDI was the need for additional data base descriptions as input to the system. He described two approaches to this problem: (i) the distribution of both the Brochure and the Catalogue should promote interest in MEDI and a better understanding of the way it functions; and (ii) increased assistance from the other agencies involved in support of the IOC activity.

Mr. Churgin also felt there was a need to clarify the statements made in paragraphs 29 and 30 of document IOC-XI/19. These statements were made in the context of what the future needs of MEDI might be in the next 2-4 years, if it expanded to its full potential. While it was the goal of the IOC to reach this full potential by then, it was by no means certain at this time. He did feel that the delegates should be made aware of the fact that other assistance and increased resources may be required. 273

He also wished to clarify any possible misunderstanding that might arise from SAB recommendations given in paragraph 23 of document IOC-XI/19 and in document IOC/INF-399. The Global Ocean Data Inventory cited in this section and MEDI are quite separate and distinct systems serving entirely different purposes. The Global Data Base may, of course, be described as a data file within MEDI once it has been established. 274

Finally, Mr. Churgin stated his belief that MEDI has the potential for making a major contribution to global programmes such as the World Climate Programme and the Open-ocean Monitoring Programme, as well as serving the individual needs of the marine community. 275

In response to questions, the Chairman of the Working Committee on International Oceanographic Data Exchange provided further clarification on MEDI. He stated that MEDI is unique in two aspects: it is an important operational activity of IOC supported by IODE; and it is a system developed to cope with the cataloguing problem in relation to the availability and location of marine environmental data acquired through many activities and marine-oriented programmes of the United Nations Specialized Agencies. 276

The Commission generally agreed that in order for MEDI to succeed, a higher level of co-operation and participation is required on the part of organizational participants in MEDI and their respective centres. In connection with increased participation, the delegate of the Federal Republic of Germany suggested that, in addition to the established channels between United Nations agencies for MEDI participation, National Co-ordinators should be urged to make contacts with their national centres for the purpose of increasing input to MEDI and also to the MEDI Catalogue. 277

Resolution XI-22 (MEDI) was adopted unanimously. 278

A.5.3 Tsunami Warning System in the Pacific (ITSU)

Reference: resolution EC-X.14

The Deputy Secretary drew the attention of the Commission to the report of the sixth session of the International Co-ordination Group for the Tsunami Warning System in the Pacific (Manila, February 1978), which had been adopted by the Executive Council at its tenth session. He particularly emphasized the urgent need for educational material on tsunamis for the general public and the necessity to improve the system, in order to make it possible to issue warnings within one hour after the tsunami causing event. He also mentioned the important role of the International Tsunami Information Centre in Honolulu, drawing attention to the fact that the post of Associate Director had been vacant since June 1979, and that at the moment there were no candidates available from Member States to fill the position. He also made it clear that IOC will not in future be in a position to fund this post from its regular funds, unless a request is made to the Director-General of Unesco to establish a new post as part of the IOC Secretariat. In this connection, he introduced resolution XI-23 (Associate Director ITIC, which was adopted unanimously. 279

280 When the Deputy Secretary informed the Commission on the dates of the next session of ICG/ITSU (to be held in Viña del Mar, Chile, 3-7 March 1980), the delegate of the USSR regretted this arrangement and said that his country will not be in a position to attend the meeting in Chile. He therefore asked the Secretary to consider a change of venue. The Deputy Secretary replied that he had followed the instructions given to him by the ICG/ITSU, at its sixth session, and that an agreement with the Government of Chile had already been signed. The delegate of Chile regretted the USSR position and said that his government would be extremely happy if a delegation from the USSR could attend the meeting in Viña del Mar. He stressed the purely scientific character of the meeting and expressed the hope that the Government of the USSR would reconsider its standpoint.

B.4.3 Training, Education and Mutual Assistance in the marine sciences (TEMA)

B.4.3.1 Statement by the Fourth Vice-Chairman on intersessional activities

281 The Fourth Vice-Chairman informed the Commission that the IOC subsidiary bodies had nominated TEMA co-ordinators.

282 He had chaired a working group that had analysed requests from Member States for assistance under the IOC's Voluntary Assistance Programme. Some administrative difficulties still stand in the way of effective use of IOC-VAP, and of the screening procedures; solution of these difficulties may require adjustment to the rules.

283 He had corresponded with various persons fully familiar with the problems of TEMA and the future of the Working Committee, with a view to considering a new mechanism for the provision of training, education and mutual assistance in the marine sciences.

284 Representing the Commission, the Fourth Vice-Chairman had attended the seventh session of the Third United Nations Conference on the Law of the Sea, the first session of the Joint IOC/WMO/CPPS Working Group on the Investigations of "El Niño" and the seventh session of the WMO Regional Commission III (Latin America).

B.4.3.2 Report of Committee III - Training, Education and Mutual Assistance in the marine sciences (TEMA)

285 The report of Committee III (item A.6) was submitted to the Plenary and approved with a few minor amendments:

A.6 TRAINING, EDUCATION AND MUTUAL ASSISTANCE IN THE MARINE SCIENCES

A.6.1 General aspects

References: resolutions IX-35, X-17, X-18, X-19;
documents IOC/EC-XI/3 item 6.3, IOC-XI/6, section 3

286 The Chairman of the Working Committee for TEMA, Dr. S.Z. Qasim, gave a brief account of the development of TEMA. He stressed the importance of training and education for the success of the activities of the various subsidiary bodies of IOC, and noted that the importance of TEMA is reflected in the fact that about 30 per cent of the IOC budget is allocated for TEMA activities. Dr. Qasim drew attention to the report of the Secretary to the

Commission (IOC-XI/6, section 3) and reviewed briefly the activities of TEMA given therein. In his review, Dr. Qasim made specific reference to the TEMA component in the IOC programme for the Investigations of "El Niño", which is a good example of the type of project to be pursued in future for the effective implementation of TEMA within IOC.

Dr. L.R.A. Capurro, Assistant Secretary, then gave a more detailed account of this TEMA activity. He explained that, following the first session of the Joint IOC/WMO/CPPS Working Group on the Investigations of "El Niño", held in Lima, Peru, 16-20 October 1978, which endorsed the Plan of Action for 1979 of the Estudio Regional del Fenómeno "El Niño" (ERFEN), members of the IOC Secretariat contacted the scientific institutions involved in the project in order to identify the specific TEMA components thereof. Training and equipment needs were listed, and potential funding sources have been identified for meeting the requests. 287

A number of delegates stressed the importance of TEMA for developing countries, and the delegate of Argentina remarked that his government, in view of the importance of TEMA to the developing countries, had offered to host the third meeting of the Working Committee for TEMA which is now planned to be held in Buenos Aires, 21-26 April 1980. 288

During the discussion the delegate of Senegal pointed out that at a regional level often a few countries were found to lack a basic infrastructure in marine science, thus rendering it difficult for them to participate in IOC programmes. He then inquired how IOC could possibly assist such countries, the participation of which might be vital for the success of a particular programme. In his response, the Assistant Secretary said that responsibility for assisting countries to develop national infrastructures falls within the mandate of the Division of Marine Sciences of Unesco, with which the IOC Secretariat works very closely. However, in such cases, IOC would always be prepared to advise Member States on ways and means of developing such an institutional basis for their marine science activities and could also suggest suitable international agencies for the country to approach for further assistance. He pointed out that the main task of the Commission through TEMA is to help Member States to strengthen their research capacity in areas relevant to the approved programmes of the Commission. 289

In the discussion about shipboard fellowships, the delegate of Kenya emphasized the importance of participation in the planning and conduct of cruises, and in the evaluation of data. The delegate of the Federal Republic of Germany concurred and noted that this matter had also been discussed in previous IOC meetings. The delegate of Norway remarked that in addition to the short-term training programmes related to the activities of other IOC subsidiary bodies, the Working Committee for TEMA should also have more long-term objectives. This point was further elaborated upon by the Chairman of the Working Committee for GIPME, who stressed that Member States must define their long-term policy in ocean affairs. 290

In order to clarify the areas of responsibility of the various agencies in the United Nations system with programmes in ocean affairs, Dr. Capurro explained that IOC is chiefly concerned with co-ordination of its global and regional TEMA activities. The ICSPRO agencies, on the other hand, carry out activities in this field, such as strengthening of marine science infrastructures, that both impinge upon and are complementary to the IOC programmes. 291

292 Dr. D.C. Krause, Chief of the Division of Marine Sciences of Unesco stated that recently there has been a significant increase in interest for the marine sciences amongst the Member States, which was demonstrated by a five-fold increase in 1979-1980 as compared to 1977-1978, of those activities of Unesco for national development in the field of marine sciences which were funded from extra-budgetary sources, such as those of UNDP and self-benefiting Funds-in-Trust for development. This reflects the increasing realization by the Member States, as a direct result of participation in United Nations conferences and the activities of the ICSPRO agencies, of the need to develop their marine science infrastructures, so as to enable them to participate in ocean programmes such as those of the IOC.

293 Attention was drawn to the work of an ad hoc Task Team established by the Executive Council at its eleventh session, Mexico City, February 1979 (document IOC/EC-XI/3, item 6.3), which had been charged with the responsibility of evaluating the organizational structure for the subsidiary body dealing with training, education and mutual assistance. Dr. S.M. Haq, Assistant Secretary, reported on the work of this Task Team which had met in Paris on 15 October 1979. He stated that consideration had been given to a suggestion that the objectives of TEMA could be more effectively reached if the IOC subsidiary body responsible for TEMA matters be composed of the TEMA co-ordinators of the IOC subsidiary bodies, with the possible participation of the ICSPRO training officers. This had already been recommended by the officers responsible for training activities in the ICSPRO agencies at a recent meeting. The ad hoc Task Team had found, on the other hand, that the TEMA regional and global meetings had shown that there is a need for a forum where Member States can have an opportunity to discuss general aspects of training and education in the marine sciences.

294 In the discussion that followed, the delegate of Belgium announced that his country was interested in planning training activities within the framework of the TEMA programme. The delegate of Yugoslavia asked for the following statement to be placed on record:

"As foreseen in IOC resolution IX-35, a Regional Centre for Post-graduate Studies in Marine Ecology has now been established in Yugoslavia. The Centre is intended primarily for the Mediterranean and developing countries. It is located on the Adriatic coast at Portorož. The founding organization is the Marine Biological Institute of the University of Ljubljana.

The building, with the laboratories, classrooms and dormitories, was completed in September. The post-graduate studies will be conducted through four semesters. The present capacity of the Centre is up to 15 students. Courses will start in 1980.

This project enjoys the full support of the Yugoslav committee for IOC, attached to the Yugoslav National Commission for Unesco. All Yugoslav marine biological and oceanographic institutes will render assistance by providing experts, laboratories, equipment and research vessels. The marine biology courses will include both fundamental and applied research, with initial studies on pollution and marine resources problems.

IOC assistance would be expected in the form of experts and technical equipment for laboratories for the future programme of the Centre, in order to expand its research and educational capacities.

Yugoslavia has so far invested about US $600,000 into this Centre and it is important to ensure that the resources are well used to the benefit of IOC programmes".

The delegate of the United Kingdom then said that his country believes TEMA to be possibly the most important of the Commission's activities but they were not convinced that the needs of developing countries were being met and that IOC's limited finances were being used to best advantage. He accordingly invited the views of developing countries on the success or otherwise of TEMA activities so far. 295

He urged that it was of prime importance to settle TEMA priorities so that they match not only developing countries' needs but also IOC's very restricted funds. In his conversations with representatives of developing countries, the delegate of the United Kingdom had noticed considerable interest in the training of marine technicians and in post-graduate training, but he emphasized that priorities were a matter for the countries concerned. He had also noticed some confusion about the various funding sources for TEMA programmes and an over-optimism about the help that IOC-VAP could provide. In his opinion it would be better to concentrate on fewer but more adequately funded TEMA component programmes. 296

He recommended that TEMA-III be asked to identify the needs of Member States with more precision and set priorities with more realism about the amount of funds likely to be available from all sources. 297

The delegate of Nigeria asked for the following statement regarding the structure and function of the TEMA programme of the IOC to be placed on record: 298

"Nigeria believes:

(i) that the programme for Training, Education and Mutual Assistance in the marine sciences of the Commission is <u>not</u> clearly defined. She believes that the structure, functions and objectives of the TEMA programme need to be clearly specified and means of achieving the stated goals be identified, examined in detail, and brought to the notice of the Executive Council and the Assembly;

(ii) that the development of marine science infrastructure, as well as inputs from the developing countries, should be the primary aim of the programme;

(iii) that the mechanism already exists within Unesco for achieving these objectives which are, in fact, one of the <u>stated</u> objectives of Unesco itself.

Therefore, we believe that the relationship between the IOC (as an advisory and co-ordinating body) and the Division of Marine Sciences of Unesco (the body responsible for giving assistance to Member States to develop their infrastructure) needs to be used more often; and that better co-operation be developed to ensure that the recommendations of the IOC (in its advisory capacity) are implemented. We believe that if TEMA is to succeed, both the Advisory and Executive Bodies of Unesco related to Oceanography and Marine Sciences must work and co-operate fully.

We believe that the inputs of IOC into the Division of Marine Sciences, at present, are far too few and the relationship too weak.

Therefore, Nigeria believes that the Working Committee for TEMA should be charged with the following tasks:

(i) to define the role, objectives and functions of the TEMA;

(ii) to examine the relationship between IOC and the Division of Marine Sciences, and explore means of achieving maximum co-operation;

(iii) to examine other avenues of achieving these objectives (i.e. other international organizations and funding bodies), taking into account the financial limitations of the IOC;

(iv) to present their report and recommendations to the next session of the Executive Council for consideration and review; and the Executive Council should, in turn, be empowered to present these views and the necessary financial aspects to Unesco, for inclusion in the next budgetary exercise after the 1981-1983 budget.

Nigeria realizes that action now may not be reflected in the next budget of Unesco, but we believe that if the objectives and financial implications are clearly defined now, a delay of three years does not matter too much; in fact, it will allow for the programmes and implications to be defined further.

Therefore, Nigeria asks that this statement be included in the report of the Assembly and forwarded, along with other documents, to the third session of the Working Committee for TEMA".

299 The Chairman stressed the great importance of TEMA for developing countries. He drew attention to his opening statement (see Annex III) in which he had pointed out the need for strengthening and reinforcement of the Commission's TEMA activities, with greater imagination and creativity in making the adjustments and efforts that are called for. He suggested that a serious study should be made at TEMA-III of the type of structure needed by the Commission in the next few years in this field of its activities and, based on this, the Executive Council should take appropriate and decisive action.

300 It was decided that a document should be prepared for presentation to TEMA-III as a basis for discussion of these proposals.

301 Resolution XI-24 (Structure for the TEMA activities of the Commission) was adopted unanimously.

A.6.2 Voluntary Assistance Programme (IOC-VAP)

References: resolution X-20;
documents IOC/EC-XI/10, Annex 2, IOC-XI/14

302 Dr. S.M. Haq, Assistant Secretary, reviewed the amendments to the IOC-VAP rules and guidelines proposed by an ad hoc working group which met in Paris, 19-20 July 1978. He explained that experience had shown that the

rules required some rewording and clarification in order to simplify the procedures. The proposed amendments, as presented in document IOC/EC-XI/10, Annex 2, were adopted.

The Commission endorsed the recommendations (document IOC-XI/14) of a group which had met in Paris, 16 August 1979, to evaluate applications for IOC-VAP. The representative of CPPS stated that the package of applications for IOC-VAP support for ERFEN/TEMA components would be formally submitted by CPPS or, if necessary, by the participating countries. 303

A more general discussion of the Voluntary Assistance Programme developed. The delegate of Uruguay noted that although his country's application for IOC-VAP support was the first one that had been approved by the Executive Council at its tenth session in Rome in June 1978, it had not yet been satisfied. Several delegates expressed their disappointment with the slow implementation of the IOC-VAP programme. 304

The delegate of the USSR noted that there seemed to be a difficulty with connecting potential donors with the countries applying for IOC-VAP support, and he asked whether the IOC Secretariat was properly staffed to carry out the IOC-VAP programme. He also suggested establishing a standing committee for evaluation of IOC-VAP applications. The Chairman remarked that this suggestion should be discussed at the TEMA-III meeting. 305

The Assistant Secretary then presented a detailed analysis of the experience obtained so far with IOC-VAP. He made a number of suggestions on how to improve the programme and made reference to the cumbersome evaluation procedures for IOC-VAP applications. He then suggested that since the Secretariat has the best knowledge of the TEMA components of the IOC programmes, perhaps evaluation should be made by the Secretariat. 306

The delegate of the Federal Republic of Germany made a number of comments on the application of the Voluntary Assistance Programme. He found the rule which requires applications to refer to specific IOC projects to be too restrictive. These comments were strongly supported by the representative of FAO. 307

The delegate of the Netherlands remarked that as IOC has to retain responsibility for IOC-VAP applications received from Member States, the Commission should in accordance with Article 2(h) of the statutes, make recommendations and provide guidance as to the formulation and execution of such applications to the Division of Marine Sciences of Unesco. 308

The delegate of the Federal Republic of Germany suggested that a document on the operation of the IOC-VAP should be prepared by the Secretariat for consideration at TEMA-III. As major agenda items for that session he proposed: 309

(i) experience with the IOC-VAP programme;

(ii) regional activities of TEMA;

(iii) restructuring of TEMA.

These views were supported by several delegates.

A.6.3 Components of operational programmes

310 Mr. T. Winterfeld, Chairman of the Working Committee on IODE, presented a report on TEMA activities relating to the IODE programme.

311 He reported that the Working Committee had paid special attention to efforts such as the publication of IOC manuals including a "Guide to establishing a National Oceanographic Data Centre" (IOC Manuals and Guides no. 5), addressed especially to the developing countries, and also to the co-ordination of training courses on oceanographic data processing.

312 He noted that the proposal for TEMA needs of IODE will be presented by the IODE/TEMA co-ordinator, Dr. V.S. Bhatt (India), at the ASFIS Training Seminar/Workshop, scheduled to be held in Cartagena, Colombia, in December 1979 (see item A.5.2 above). Mr. Winterfeld reported that there is at present no specific provision of support other than at national expense to enable the TEMA co-ordinators to attend important meetings, in order that they may promote TEMA objectives.

313 In the next biennium the Working Committee on IODE, considering the overall budgetary constraints, will concentrate its efforts partly through the use of consultants, on the compilation of training manuals and material on such topics as data reduction and quality control, data archiving and methods of utilization of computers in the preparation of data products and information.

314 The WC/IODE will make intensive efforts to play a catalytic and advisory role in planning training courses, hopefully to be conducted by the Member States, dealing with all aspects of data and information processing including the operation of NODCs and RNODCs. It will explore actively the use of the IOC-VAP and will seek other financial assistance from the Member States, so as to provide various types of data processing equipment to meet the expressed needs of individual countries.

315 Dr. L. Andrén, Assistant Secretary, outlined TEMA-related activities in the past, or planned, within the Marine Pollution (Petroleum) Monitoring Pilot Project and the ensuing pollution monitoring programme (MARPOLMON). Of particular interest were the plans to hold a Training Course on Marine Pollution (Petroleum) Monitoring in Goa, India, in December 1979, and the steadily increasing interest and active participation shown by developing countries. Although MARPOLMON would require a specific TEMA programme with training, assistance and expert advice, it was at best uncertain if further funds could be obtained from UNEP for such purposes.

316 The main elements envisaged in future, subject to availability of funds, are:

group training;

study tours/visits;

expert advice (consultants);

equipment (spectrofluorometers, neuston nets);

supplies (solvents, inter-comparison samples);

costs of meeting attendance.

The Commission noted these activities with appreciation and felt it essential to give an increasing number of developing countries an opportunity to participate through support along the lines outlined by the Assistant Secretary. 317

Mr. R.C. Junghans, TEMA co-ordinator for IGOSS, reviewed briefly the TEMA components in the ongoing and planned IGOSS programmes. IGOSS will continue production of manuals and guides which will be useful for developing Member States planning to participate in IGOSS activities. Mr. Junghans added that in the 1981-1982 budget for IGOSS, $10,000 had been allocated for a training course in data processing and supporting services for IGOSS activities; $4,000 for a training meeting on the BATHY-TESAC activities; $6,000 for consultation to Member States on instrumentation and methodology related to IGOSS; and $45,000 for a training course on marine pollution monitoring. Mr. Junghans proposed that efforts should be made to produce a film on all aspects of IGOSS, with sound-tracks in all the IOC working languages. 318

After a short discussion, the Commission decided that the IOC Secretariat, in co-operation with the TEMA co-ordinators, should take all necessary action to implement the concrete TEMA components of the IOC subsidiary bodies. 319

B.5 BIENNIAL ELECTIONS FOR NEW OFFICERS OF THE COMMISSION AND MEMBER STATES OF THE EXECUTIVE COUNCIL

Reference: document IOC/INF-303 rev.2

The Chairman of the Nominations Committee, Rear-Admiral L.C. de Freitas (Brazil), presented the report of his Committee, informing the Committee that all nominations received had been found to be in order. 320

As only one nomination was received for each the posts of Chairman and First, Second and Third Vice-Chairmen, the candidates were elected by acclamation. 321

Two nominations had, however, been received for the post of Fourth Vice-Chairman. Following pre-election speeches by the delegate of Venezuela on behalf of Capitán de Navío G. Angel Mejía (Colombia) and by the delegate of India on behalf of Dr. A.R. Bayoumi (Egypt), an election was held. 322

The outcome of the election for the officers of the Commission for the next biennium was as follows: 323

Chairman:	Dr. A. Ayala-Castañares (Mexico)
First Vice-Chairman:	Dr. N.J. Campbell (Canada)
Second Vice-Chairman:	Prof. Dr. C. Druet (Poland)
Third Vice-Chairman:	Prof. I.A. Ronquillo (Philippines)
Fourth Vice-Chairman:	Dr. A.R. Bayoumi (Egypt).

Following two ballots, the following Member States were elected to seats on the Executive Council: 324

Argentina	Colombia	India
Brazil	France	Japan
China	Germany, Fed. Rep. of	Kenya

Netherlands	Sweden	U.S.A.
Nigeria	Tunisia	Venezuela
Senegal	USSR	Yugoslavia
Spain	United Kingdom	

325 A full list of State member representatives is given in Annex IV.

B.6 STRUCTURE OF THE COMMISSION

B.6.1 Report of Committee IV - Guidelines for the structure and responsibilities of the subsidiary bodies of the Commission

References: resolution X-28;
documents IOC-XI/15, IOC-XI/C-IV/SR

326 Professor Dr. H.U. Roll, Federal Republic of Germany, Chairman of Committee IV, introduced the item. In the course of his introduction, Dr. Roll noted that the report of Committee IV could now be considered as final, since amendments had been requested from members of the Committee and none were received. He also noted that a new term "Programme Group" had been coined to replace "International Co-ordination Group".

327 The delegate of Argentina expressed concern that the use of the title "Programme Group" to replace the title "International Co-ordination Group" implies a change in the tasks assigned to this category of subsidiary body and it is important that this be taken into account.

328 The document was examined section by section and adopted with a number of amendments. The final adopted text will be reproduced in the next revision of the IOC Manual, Part I (Section 4). It was noted that there were certain discrepancies between the different language texts. The Secretary was instructed to ensure that these were resolved before the document is published.

329 Resolution XI-25 (Guidelines for the Structure and Responsibilities of the Subsidiary Bodies of the Commission) was adopted unanimously.

B.6.2 Future role and functions of the Commission

References: resolutions X-25, EC-X.15;
documents SC/MD/55, Annex V, IOC/EC-XI/3, item 8.1, IOC/EC-XI/21, IOC/WG-FUROF-II/16 Add., IOC/EC-XII/6, IOC/EC-XII/7

330 After a brief outline of the history of the events leading up to the establishment of the Working Group on FUROF and thereafter, the Assembly decided first to consider FUROF recommendation 13 and the decisions of the Executive Council thereon (see Annex V), together with its supporting documents "The Purpose and Functions of the Intergovernmental Oceanographic Commission and Directions for its Future Programme" (document IOC/EC-XII/7) and "Report of the Task Team on the Identification of Programmes of Greatest Benefit to Developing Countries" (document IOC/WG-FUROF-II/16 Add.).

331 The delegate of the Netherlands made the point that ocean energy was mentioned in the introduction to document IOC/EC-XII/7, but not in the sections dealing with programmes, nor in the draft resolution. This apparent omission was echoed by several other delegates. The delegate of the Federal

Republic of Germany noted that it had been taken out of the final report because it was a technological problem, not a scientific one. The delegate of Japan stressed the importance of ocean energy being included in the Commission's future programme.

The delegate from Brazil proposed that the Assembly concentrate on the draft resolution, merely noting the document (IOC/EC-XII/7). He also felt that the future role and functions of the Commission should not be linked to the probable outcome of the Third United Nations Conference on the Law of the Sea (UNCLOS), at least at this stage. Several delegates, notably those from the Federal Republic of Germany, the U.S.A. and Canada, felt that the document was important and deserved more attention and general discussion than that, and indeed that it provided the general framework for IOC's future activities. On the other hand, several delegates, notably those of Senegal and Uruguay, supported Brazil's stand. The delegate of Senegal made the following statement: 332

> "The general comment that I should like to make at this point is that Senegal, guided by the two following major concerns: firstly, that of a more active participation in the life and activities of the IOC by adapting to the changes and alterations which are bound to come about in the future, and, secondly, that of ensuring complete respect for its undertakings on the international scene, thinks that an organization such as ours should show that it is aware of the heterogeneity, its members' points of view, and should therefore go forward without an undue waste of time but also without undue haste". 333

The delegate of the U.S.A. proposed a wording change to the draft resolution that would allow the adoption of the report by the Assembly, except for certain sections referring to the Third United Nations Conference on the Law of the Sea which would be deleted. These sections referred to the outcome of UNCLOS and the new ocean regime, and were causing difficulties with some delegates. However, a number of delegates opposed the deletion of these sections because the emergence of the new ocean regime had already been recognized in resolution X-25 and it would be inconsistent to deny it now. Also, it was pointed out that the Assembly could not, in fact, delete sections of a report prepared by a working group. 334

It was proposed, rather than deleting the sections in question, that the report be approved with the exception of the sections which were causing difficulty for some members (2.4 (ii) first paragraph and 4.4). It was further proposed by Brazil that the draft resolution be amended so as to allow reconsideration of the framework at a later stage in the light of the results from UNCLOS. 335

The Assembly then turned to FUROF recommendations, 5, 6 and 10 concerning additional funding for the Commission and the Executive Council's decisions thereon (see Annex V). Resolution XI-26 (Possible Sources of Funding for the IOC) was adopted unanimously. 336

A draft resolution covering WG/FUROF recommendation 3 concerning the selection of staff members for the IOC Secretariat was then considered. The Secretary apologized on behalf of Dr. A. Kaddoura, Assistant Director-General for Science of Unesco, for his unavoidable absence and then read the following prepared statement: 337

"I have studied this draft resolution carefully and as I understand the wording, there is no intention of inviting the Director-General to make any changes to the present procedures for the selection of staff members for the IOC Secretariat. If I am right, it is only intended to ask for the ocean basis of its programmes to be taken into account when applying the principle of geographical representation".

338 Resolution XI-27 (Selection of IOC Staff Officers) was adopted unanimously.

339 The Assembly then considered the remaining recommendations of the Working Group on the Future Role and Functions of the Commission and the decisions of the Executive Council (taken at its twelfth session) thereon (see Annex V), taking into account the supporting material in the documents "Recommendations of the Working Group on the Future Role and Functions of the Commission" (document IOC/EC-XI/21) and the "Additional Background Information requested by the Council at its eleventh session on document IOC/EC-XI/21" (document IOC/EC-XII/6), were then approved. Resolution XI-28 (Major Directions for the Commission's Future Programme) was adopted unanimously.

340 The Assembly decided to dissolve the Working Group on the Future Role and Functions of the Commission and expressed the appreciation of the Commission to the Chairman and members for carrying out their task so successfully. It was decided that a letter of thanks should be sent to each member of the Working Group.

341 The delegate of Egypt noted that discussions during the present session had been lengthy but very fruitful. He felt that this reflects the increasing interest of the developing countries in the activities of the IOC. At the same time, however, the developing countries have a certain feeling of disquiet with respect to the future role of IOC, in the light of its vast field of responsibilities. This makes it imperative that the Commission make every effort not only to change this feeling but also to give more satisfaction to the developing countries.

B.6.2.1 Proposal for Amendment to the Statutes of the Commission

References: resolutions X-25, EC-XI.15;
documents IOC/EC-XI/21, IOC/EC-XII/3, item 4,
IOC/EC-XII/6, IOC/INF-408

342 The Assembly then considered resolution IOC-XI/DR.29 rev. "Proposed Amendments to the Statutes" (reproduced below) concerning proposed amendments to Articles 1, 2 and 9 of the Statutes. The draft resolution had been submitted by the Executive Council (reference: document IOC/EC-XII/3, item 4), together with the document "Proposed Amendments to the Statutes of the Intergovernmental Oceanographic Commission" (document IOC/INF-408). The Assembly was reminded that before adopting that part of the draft resolution dealing with the change to the title of the Secretary's position, it would be necessary to suspend Rule of Procedure No. 56, paragraph 2, under Rule of Procedure No. 58, as the amendment had not been "circulated at least three months prior to the session of the Assembly".

RESOLUTION IOC-XI/DR.29 rev.

Submitted by the Executive Council
Agenda item B.6.2.1

PROPOSED AMENDMENTS TO THE STATUTES

The Intergovernmental Oceanographic Commission,

Having studied the report and recommendations of the Executive Council regarding the Future Role and Functions of the Commission (documents IOC/EC-XI/3 and IOC/EC-XII/3),

Noting the report of the Chairman on his discussions with the Director-General of Unesco regarding the Administrative Structure of the Commission and Functions of the Secretariat (document IOC-XI/16),

Pursuant to IOC Statutes, Article 13,

Recommends to the General Conference of Unesco that, at its twenty-first session, it adopt the following proposed amendments to the Statutes of the Commission:

Article 1, paragraph 1, amend to read "The Intergovernmental Oceanographic Commission, hereinafter called the Commission, is established as a body with functional autonomy within the framework of the United Nations Educational, Scientific and Cultural Organization, hereinafter called Unesco".+

Article 2, add new subparagraphs as follows:

"(j) promote, plan and co-ordinate research programmes, monitoring systems and assessment studies on the quality of the marine environment and thereby contribute to the management and protection of the marine environment in collaboration with Member States and the appropriate international organizations;

(k) undertake, directly or in co-operation with other international organizations, as appropriate, any other action compatible with its purpose and functions concerning the ocean, its floor and subsoil, and its interactions with the atmosphere and the land masses, as may be decided by its Member States;"

Article 9, paragraph 2, for "Secretary" read "Executive Secretary";

Recommends strongly that this submission be accompanied by a document giving a detailed explanation of what is meant by the phrase "a body with functional autonomy within the framework of Unesco" and a brief explanation of the reason for the amendments proposed to Articles 2 and 9 of the Statutes;

+ Underlined only to indicate proposed amendment to wording.

> Wishes to take this opportunity to place on record for the information of the Unesco General Conference that it is of the opinion that the above amendments are of an urgent nature in view of the increased responsibilities that have devolved on the Commission in recent years and that this reflects great credit on Unesco for the support it has given over the years to the Commission in the execution of its work;
>
> Believes however that there may be a need to study the IOC Statutes further in light of developments in the Third United Nations Conference on the Law of the Sea.

343 Dr. A. Kaddoura, ADG for Science of Unesco, said that the Director-General is willing to examine all proposals that will enhance the efficiency and status of the IOC and is determined to give stronger support and greater resources to the Commission, but he considered that matters such as these should be handled using the normal procedures laid down in the Statutes and not in such haste that an Article of the Statutes has to be suspended. The delegate of Canada explained the rationale behind the proposed amendments to Articles 1 and 2. The Secretary noted that document IOC/INF-408 has been prepared in response to the instruction in resolution EC-XI.15, to provide more information about the proposed amendments and that the text has been agreed with the Director-General of Unesco and the Chairman of the Commission.

344 A number of delegates, notably those of the Netherlands and France, supported the amendment to Article 1. The delegate of the Netherlands, speaking as Chairman of the FUROF legal group, pointed out that the WG/FUROF had, in proposing the amendment to Article 1, tried to upgrade the status of the Commission. Her interpretation of the explanation given in document IOC/INF-408, however, is that the amendment does no more than recognize the status quo, with which she could agree fully.

345 However, the delegate of Brazil, supported by several other delegations, felt that the additional information provided in document IOC/INF-408 was insufficient and that the Statutes should not be amended on a piecemeal basis; they were therefore opposed to the amendment.

346 With reference to the amendments to Article 2, a number of countries supported both, some only one or the other, and a few neither. The delegation of Brazil felt that document IOC/INF-408 did not explain the need for them satisfactorily and that they are premature, especially subparagraph (k), which is linked to the results of the Third United Nations Conference on the Law of the Sea. The need for paragraph (j) was less generally accepted than that for paragraph (k).

347 It was agreed, on the proposal of the delegate of the U.S.A., that no mention of UNCLOS be made in any explanatory document accompanying the amendments to the Unesco General Conference and, on the suggestion of the delegate of Uruguay, an additional clause was added to the draft resolution to make it quite clear that these amendments do not preclude or oppose any of the norms that may be adopted by the Third United Nations Conference on the Law of the Sea.

348 The Chairman then summed up the debate as follows: "It is now time to take action on the amendments proposed to the Statutes. As the Assembly has been unable to reach a consensus in the debate, the decision will be taken by vote. We have before us four amendments recommended by the Executive

Council and we shall address each one separately. I should also remind you that the fourth amendment we shall address, to Article 9, paragraph 2, will also require a vote on the suspension of Rule of Procedure No. 56, paragraph 2.

Firstly the recommendations before us are the result of an exhaustive 349
study undertaken by the Working Group on the Future Role and Functions of the Commission (FUROF) and are the synthesis of much more substantial and widespread amendments originally placed before the Executive Council at its eleventh session in Mexico City. I should remind the Assembly that at EC-XI the majority of amendments were deferred for much the same concerns that have been expressed here, namely the need for further consideration and to await developments at UNCLOS. The proposed amendments to Articles 1 and 2, now before the Assembly, were approved unanimously however by those Member States representing the Commission on the Executive Council at that time (see resolution EC-XI.15).

During the debate some Member States have spoken out against the amend- 350
ments as being unnecessary, cosmetic and prejudging UNCLOS decisions. Others have spoken of the reasons for clarifying the Statutes to reflect adequately the true nature of the Commission's responsibilities and activities. A few Member States, noting the division of opinion and the lengthy debate, have expressed the view that more time is needed before a decision can be reached. Please note that we have already studied this whole matter very thoroughly over a period of two and a half years.

As your Chairman, and Chairman of the WG/FUROF, I have had the closest 351
association with all these developments. I have been charged by you to speak to the Executive Heads of the United Nations agencies members of ICSPRO (see resolution X-25) and have represented the Commission at the Third United Nations Conference on the Law of the Sea. That Conference has figured largely in our discussions, and rightly so, as the Informal Consolidated Negotiating Text contains references to "competent international organizations" in over 70 of its Articles, many of those in the sections referring to Marine Research and Marine Pollution.

The United Nations will doubtless be examining the Statutes and respon- 352
sibilities of the various United Nations bodies to determine where best these various tasks arising from a new convention should be placed. If our Statutes are not explicit, tasks which should rightly devolve upon us may fall by default, and new bodies will be formed outside Unesco, at high cost to Member States, to fill the apparent vacuum.

I should also remind the Assembly that a vote for these amendments now 353
will permit the Unesco General Conference to revise the Statutes in late 1980 and we have already been informed that UNCLOS aims for the adoption of the Convention in 1980.

Finally, distinguished delegates, I would urge you to vote with courage 354
and the conviction that your Commission is able to undertake on behalf of its Member States many programmes and activities in the world's oceans, and its ability to do this should be clearly visible in its Statutes. A weak and indecisive vote now will delay any possible amendments to the Statutes by some three years - that is, four years from now - and in my humble opinion, this will be too late".

In the event, when the time came for the draft resolution IOC-XI/DR.29 355
rev. to be put to vote, there was no quorum present. The Assembly therefore

asked a legal adviser from the Unesco Secretariat for his opinion on the status of the proposals contained in the draft resolution which related to possible amendments to the Statutes of the Commission.

356 The legal adviser recalled that in accordance with the terms of Article 13 of these Statutes, they might be amended by the General Conference of Unesco either following a recommendation of, or after consultation with, the Commission. He said there appeared to be no difficulty over the scope of the expression "following a recommendation" of the Commission because it was precisely for the purpose of making such a recommendation that resolution IOC-XI/DR.29 rev. was before the Assembly.

357 Apart from the problem of the quorum, attention was in this connection also drawn to Rule of Procedure No. 56, paragraph 3, of the Commission, which provides that "A majority of all Member States of the Commission shall be required for the adoption of a recommendation for the amendment of the Statutes". The legal adviser stated that, in his opinion, this provision meant that for the Commission, through the Assembly, to adopt the recommendation contained in the draft resolution concerned, a majority of all Member States of the Commission, whether they were represented in the meeting room or not, was required. He pointed out that whenever only a majority of members present and voting was demanded, it was normal Unesco practice for the pertinent rules of procedure to say so in so many words. As an example, he drew attention to Rule of Procedure No. 43, paragraph 1, of the Commission, which expressly states that "Unless otherwise provided in the Rules of Procedure, or unless the Assembly shall decide that a two-thirds majority of members present and voting is required on a particular matter, decisions shall be made by a simple majority of the members present and voting" (emphasis added).

358 With regard to a suggestion that the proposals contained in resolution IOC-XI/DR.29 rev. might perhaps be submitted to Member States of the Commission for adoption by correspondence, the legal adviser stated that, in his view, it would be inappropriate, from the legal standpoint, for decisions which should properly be adopted by the Assembly to be communicated to IOC Member States for adoption by correspondence in the absence, in the IOC Statutes or Rules of Procedure, of any express enabling provisions to that effect. He pointed out that Rule of Procedure No. 49, paragraph 1, of the Commission, which had been referred to by a delegate in support of the suggestion, applied only to approval of parts of the Summary Report relating to a given session of the Assembly which the Assembly might be unable to approve before the end of the session concerned and not to the taking of substantive decisions such as the one the Assembly might want to take in respect of the proposals contained in resolution IOC-XI/DR.29 rev. He also explained that if the Assembly were unable to make a favourable recommendation on those proposals, then the other alternative provided under Article 13 of the Statutes would be for the Unesco General Conference to take the initiative and consult the Commission on the envisaged amendments. The first step in this direction might be for any Member State of Unesco, which wished to do so, to request, within the time limit laid down by the Rules of Procedure of the General Conference, a relevant item to be placed on the provisional agenda of the twenty-first session of the General Conference. In that case, the General Conference would have the opportunity to decide, as appropriate, whether or not there was need to consult the Commission in accordance with Article 13 of the Commission's Statutes. The legal adviser added that, in his opinion, initiative for the "consultation" foreseen by the above mentioned Article 13 was vested in the consulting party, that is the General

Conference, and not in the consulted party, that is the Commission. This consultation could therefore not be said to have been effected if the Commission were to give its views and opinion on the proposals for amendments to the IOC Statutes without a prior request by the General Conference addressed to the Commission asking the latter to match its views and opinion on the proposals known.

He further remarked that in the light of the situation in which resolution IOC-XI/DR.29 rev. found itself, it would not be technically feasible for the envisaged amendments indicated in that draft resolution to be adopted by the General Conference at its twenty-first session because, on the one hand, the Commission was unable to make before this session of the General Conference the recommendation required by Article 13 of the IOC Statutes and, on the other hand, it was not practicable for the "consultation" demanded by that Article to take place in time for the General Conference to adopt, if it so wished, the draft amendments which were the subject matter of resolution IOC-XI/DR.29 rev. In conclusion, he stated that it was possible for the views of IOC Member States regarding these draft amendments to be communicated to the General Conference for information, it being understood, however, that this could not constitute the "consultation" with the Commission required by Article 13 of its Statutes. 359

In view of the above advice, the Chairman decided not to put resolution IOC-XI/DR.29 rev. to the vote and the draft resolution therefore lapsed. After considerable discussion, it was decided that delegates wishing to do so could present their views on the proposed amendments to the Statutes in writing, for inclusion in the Summary Report. The following written statements were received by the Secretariat. 360

ARGENTINA

The delegation of Argentina, reiterating the position it assumed during the debate, places on record that it maintains a favourable position in respect of the amendment to Articles 1 and 2 of the Statutes of the Intergovernmental Oceanographic Commission (IOC), as outlined in resolution IOC-XI/DR.29 rev., with the sole proviso that the resolution by which these amendments may be approved, should incorporate a new paragraph in which it is stated clearly that recognition of the aforementioned amendments are neither contrary to, nor prejudice, any standards and positions that the Third United Nations Conference on the Law of the Sea may establish in the future.

AUSTRALIA

The delegation of Australia wishes to express its support for the general intent of the proposed changes to the Commission's Statutes as embodied in resolution IOC-XI/DR.29 rev. The amendment to Article 1, paragraph 1 concerning "functional autonomy" is supported. Australia has a slight reservation concerning the desirability of including in Article 2 of the Statutes the proposed addition of subparagraph (j), although, if this amendment were to be supported by the majority of Member States of the Commission, Australia could support it. The proposed inclusion of subparagraph (k) is fully supported. In respect of the proposed amendment to Article 9, paragraph 2, Australia could support this amendment if it were considered appropriate and had the support of the Assembly and the General Conference of Unesco.

BRAZIL

If resolution IOC-XI/DR.29 rev. had been put to a vote, the Brazilian delegation would have asked for a separate vote on the several amendments proposed and would have voted as follows, taking into account the viewpoints it expressed in the twelfth session of the Executive Council and in the current session of the Assembly:

(a) proposed amendment to Article 1, paragraph 1, the Brazilian delegation would have abstained;

(b) proposed amendment to Article 2, the addition of a new subparagraph (j), the Brazilian delegation would have abstained;

(c) proposed amendment to Article 2, the addition of a new subparagraph (k), the Brazilian delegation would have voted against;

(d) proposed amendment to Article 9, paragraph 2, the Brazilian delegation would have voted in favour.

BULGARIA

The delegation of Bulgaria supports the proposed amendments to Articles 1 (para. 1) and 2 as contained in resolution IOC-XI/DR.29 rev.

CAMEROON

The delegation of Cameroon, in the absence of precise instructions from its Government on this resolution, and in light of the fact that the quorum stipulated by the IOC Statutes had not been reached, considers that this question should be re-examined at the next session of the IOC Assembly.

CANADA

Canada wishes to go on record as supporting all the amendments proposed in resolution IOC-XI/DR.29 rev. Canada feels that it is timely to adopt changes to the Commission's Statutes that demonstrate to ourselves and to other organizations, bodies and governments less familiar with the Commission, an accurate reflection of the Commission's responsibilities and activities. It is with regret that our delegation accepted the inability of the Assembly to discharge its business. In this regard we would be in favour of an extraordinary session of the Assembly to resolve the Statute amendment question.

CHILE

The delegation of Chile is opposed to any modification of the Statutes of the IOC that:

(1) may prejudge any conclusions that may be arrived at by the Third United Nations Conference on the Law of the Sea;

(2) may compromise the terms of reference of the aforesaid Conference;

(3) may tend to over-emphasize the structure of the Secretariat, the IOC office bearers or the Direction of the IOC to the detriment of representation by Member States.

CHINA

Having studied carefully resolution IOC-XI/DR.29 rev. and listened with interest to the opinions voiced by the delegates of various countries, we consider the proposed amendment to the Statutes as an important issue as the viewpoints of many countries. Any amendments to the Statutes should be instrumental to the development of the IOC's work and to the further strengthening of unity and co-operation among the Member States. The amended content in the Statutes proposed to the Assembly should have under it a strong base which is broad in its acceptability.

In view of the existence of considerable differences in opinions towards this important issue, we consider that there should be further consultations and discussions on this issue, with a view to reaching a consensus.

DENMARK

The delegation of Denmark regards the amendment to Article 1 of the Statutes as important, since it strengthens the status of the Commission which is welcomed by all Member States. We also strongly endorse the amendment to Article 2 (k) in its entirety, while we consider (j) useful but not as important as the two other amendments.

ECUADOR

Comments by the delegation of Ecuador on resolution IOC-XI/DR.29 rev.: The delegation agrees with the preambular paragraphs, beginning with:

Having studied.....

Noting.....

and with the remaining text subject to the following basic observation:

As the correct procedures had not been carried out during the eleventh session of the Assembly, Article 13 of the Statutes must be applied fully at the next session when the Draft Amendments to the Statutes contained in resolution IOC-XI/DR.29 rev. of 25 October 1979 are reconsidered.

EGYPT, ARAB REPUBLIC OF

The Egyptian delegation supports the proposed amendments to the Statutes as given in resolution IOC-XI/DR.29 rev.

FINLAND

The delegation of Finland supports the amendments proposed.

FRANCE

The delegation of France supports the three amendments proposed to Articles 1 and 2 which were unanimously approved by FUROF and adopted by the Executive Council. It is also its intention to support the amendment to Article 9, paragraph 2, not overlooking the fact that this amendment, having been presented later than the others, might require some further discussion. It is hoped that these amendments could be submitted to an extraordinary session of the Assembly after receipt of comments from Member States and in sufficient time for them to be placed before the General Conference of Unesco at its next session.

GABON

The delegation of Gabon, in conformity with the Statutes of IOC, and in particular Article 56 (3), considers that, in the absence of a quorum and bearing in mind the fact that almost all developing countries had opposed these amendments, this question should be re-examined by the next IOC Assembly.

GERMAN DEMOCRATIC REPUBLIC

The delegation of the German Democratic Republic supports the proposed amendments to Articles 1 (para. 1) and 2 as contained in resolution IOC-XI/DR.29 rev.

GERMANY, FEDERAL REPUBLIC OF

The delegation of the Federal Republic of Germany to the eleventh session of the IOC Assembly wishes to state that we are in favour of adopting the amendments to Articles 1 and 2 of the IOC Statutes as contained in resolution IOC-XI/DR.29 rev.

GREECE

The delegation of Greece to IOC-XI is in complete agreement with the amendments to the Statutes of the Commission as shown in the French text of resolution IOC-XI/DR.29 rev.

IRAQ

The Iraqi delegation does not see that the proposed amendments are necessary at this stage.

JAPAN

Japan is in favour of resolution IOC-XI/DR.29 rev.

KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF

The Democratic People's Republic of Korea, as a new member of the Commission, has requested more time to study resolution IOC-XI/DR.29 rev. While being in favour of the development and enlargement of IOC activities, it is regretfully unable to formulate an opinion at the moment.

KOREA, REPUBLIC OF

The delegation of the Republic of Korea is in favour of the proposed amendment to the Statutes.

MEXICO

The delegation of Mexico supports the Draft Amendments to Articles 1 and 2 of the Statutes of the IOC, as proposed by the FUROF Working Group (resolution IOC-XI/DR.29 rev.).

MONACO

The delegation of Monaco approves the proposed amendments to the IOC Statutes reflecting the work of FUROF, the Executive Council, and the wish of Member States that the activities of their Intergovernmental Oceanographic Commission be strengthened. It also approves any measures, even those of an exceptional nature, which are felt necessary to ensure that these constructive amendments may be submitted, with the shortest possible delay, to the competent bodies with a view to their adoption by the next General Conference of Unesco.

MOROCCO

The delegation of Morocco, in accordance with the Statutes of IOC, and particularly Article 56 (3), considers that, in the absence of a quorum and bearing in mind that almost all Member States of IOC were opposed to the amendments to the Statutes of the Commission, this question should be resubmitted to the next IOC Assembly for examination.

NETHERLANDS

The Netherlands delegation wishes to place on record that it is fully in agreement with the proposed changes to the Statutes as laid down in resolution IOC-XI/DR.29 rev. The delegation is of the opinion that the change to Article 1 is essential. It does no more than reflect the "status quo". It will enhance the Commission's dealings with other organizations. The changes to Article 2 reflect the state of affairs as of today and the change to Article 9 is no more than an editorial change.

NORWAY

The delegation of Norway fully supports the amendments to Article 1 and Article 2 of the Statutes, as presented in resolution IOC-XI/DR.29 rev.

PHILIPPINES

The Philippine delegation sincerely believes that these draft amendments, if adopted, will enhance the role of the IOC. We believe that the proposed amendments strengthen the ability of the Commission to render coordinating, advisory or implementing functions on ocean scientific research and investigations. The Philippines therefore supports the proposal to adopt these amendments.

POLAND

The Polish delegation supports the proposed amendments to IOC Statutes Article 1, paragraph 1 and Article 2, new subparagraphs (j) and (k), contained in resolution IOC-XI/DR.29 rev.

SWEDEN

Sweden would like to have its views as expressed in the statement in Plenary (3 November 1979) included in the Summary Report.

Sweden is in favour of the proposed amendments (in resolution IOC-XI/DR.29 rev.) to the Statutes.

THAILAND

The Thai delegation feels that the intention of these amendments is to create an improvement to the status of our organization scientifically.

We also feel that these amendments are not harmful to our country but that they would be most beneficial to all.

Therefore this delegation would wish to support very strongly the amendments to Articles 1 and 2 of the Statutes, as proposed in resolution IOC-XI/DR.29 rev.

TOGO

The delegation of Togo agrees in principle with resolution IOC-XI/DR.29 rev. and hopes that an explanatory letter will be sent to Member States in this respect. Governments could also be asked to express an opinion as to an eventual extraordinary session of the IOC Assembly.

TUNISIA

The delegation of Tunisia has the following comments to make in respect of resolution IOC-XI/DR.29 rev.:

(1) "Functional autonomy" - in the absence of sufficient and satisfactory justifications, this question should be re-examined at the next session.

(2) Change of "Secretary" to "Executive Secretary" - The delegation of Tunisia agrees to this amendment.

(3) Article 2: inclusion of two new paragraphs "j" and "k".

(a) paragraph "j" - the Tunisian delegation has requested clarification of the meaning of the word "management", and by the addition of the word "pollution" before "monitoring systems";

(b) paragraph "k" - the Tunisian delegation has noted the inclusion of a new idea as to the activities of the IOC, as implied by the use of the word "undertake". Failing sufficient justification, especially in document INF-408, and in light of the possible relationship between the activities outlined in this paragraph and the work of UNCLOS, the delegation of Tunisia is not in favour of this paragraph.

UKRAINIAN SSR

Ref. resolution IOC-XI/DR.29 rev.: in favour of this resolution.

UNION OF SOVIET SOCIALIST REPUBLICS

The delegation of the Soviet Union supports the proposed amendments to Articles 1 and 2 of the IOC Statutes as contained in resolution IOC-XI/DR.29 rev.

UNITED KINGDOM

The United Kingdom was consulted by correspondence about the proposed recommendations of the FUROF Group and considers that its several important suggestions were, broadly speaking, reflected in the final recommendations of the FUROF Group. The United Kingdom therefore supports the proposals contained in resolution IOC-XI/DR.29 rev. and hopes that some way will be found to amend the Statutes accordingly.

UNITED STATES OF AMERICA

The United States of America supports the recommendation in resolution IOC-XI/DR.29 rev. to amend Article 2, subparagraph (k). Although the United States delegation does not see the necessity for the proposed amendments to Article 1, to Article 2, subparagraph (j), and to Article 9, it does not oppose their adoption. On balance, therefore, the U.S.A. supports resolution IOC-XI/DR.29 rev.

URUGUAY

In respect of resolution IOC-XI/DR.29 rev. and the draft amendment to the IOC Statutes, the delegation of Uruguay states:

(1) that it has no objection to the amendment of Article 1 within the limits established by this Assembly for the use or meaning of "functional autonomy";

(2) it supports the amendments to Article 2 so long as the following proviso is included, "The IOC recognizes that the draft amendments

to its Statutes referred to in the preceding paragraphs, neither oppose, nor prejudice, any future standards established by the Third United Nations Conference on the Law of the Sea";

(3) that it has no objections to the amendment to Article 9.

YUGOSLAVIA

The Yugoslav delegation is of the opinion that in view of the discussion in the plenary session of the eleventh session of the IOC Assembly, further consideration would be needed by the Government of Yugoslavia on resolution IOC-XI/DR.29 rev. We shall be glad to reply to a circular letter from the IOC Secretariat.

B.6.2.2 Administrative structure of the Commission and functions of the Secretariat

References: resolution X-26;
document IOC-XI/16

361 The Chairman presented his report (document IOC-XI/16) to the Assembly in response to resolution X-26.

362 During the ensuing discussion, the delegate from the U.S.A. expressed his thanks to the Chairman for a clear and complete report and also made the point that the upgrading of the Secretary's position from D-1 to D-2 was particularly welcome. However, he had some reservations about the proposed title change (Secretary to Executive Secretary). The delegates of several other countries spoke in support of the report. The Secretary read out a list of the subsidiary organs of the United Nations having Executive Secretaries. This title has nothing to do with grade. In fact, he knew of at least one of D-1 level. In response to a question about paragraph 10 of the report, the Chairman said that if the change of title was not considered by the twenty-first General Conference of Unesco (second half 1980), it would have to await the twenty-second (second half 1983). The report was approved by the Assembly and the Chairman was thanked for his excellent work which should be continued.

B.6.3 Scientific Advisory Board (SAB)

References: resolution IX-19;
documents SC/MD/60, item 13.1, IOC/EC-XI/3, item 7.2, IOC-XI/17, IOC/SAB-IV/3

363 In discussing document IOC-XI/17, the Third Vice-Chairman, Mr. O.J. Østvedt, noted that it had been prepared at the request of the Executive Council at its meeting in Mexico City (document IOC/EC-XI/3, item 7.2). Mr. Østvedt went on to note that it had been proposed that the name of the Board be changed to Scientific Review Board, and that the cost of the Board could be reduced if simultaneous interpretation could be avoided when not necessary. The report (document IOC-XI/17) was approved and resolution XI-29 (The IOC Scientific Review Board) was adopted unanimously after slight amendment.

B.6.4 Regional Co-operation in Marine Science

References: resolution IX-22;
document IOC/INF-407

The Secretary introduced the information document "Regional Co-operation in Marine Science" (document IOC/INF-407) which had been prepared by a consultant for ICSPRO. He explained that, with the agreement of ICSPRO, he was submitting this document on his own authority, to the Assembly in response to resolution IX-22. 364

He then drew attention to the intention, recorded in the Preface to the document that the study be carried out in three phases: 365

I. A review of the present state of existing regional bodies within and outside the United Nations system dealing wholly or in part with matters relating to marine science and its applications.

II. Trends or developments of particular importance affecting marine science and its applications, together with a review or exposé of what problems are foreseen (or are already being experienced) and the general issues involved.

III. Proposed solutions to these problems,

and that the first two phases be undertaken by the consultant and the third by the ICSPRO agencies, when the consultant had completed his work.

However due to developments which had taken place after the consultant had started work, it was subsequently decided by ICSPRO at its nineteenth session (March 1979) that the consultant's report covering Phase II could not be authorized for issue at the present time. 366

Consequently the document now placed before the Commission covered Phase I only. 367

The delegate of the USSR, supported by the delegates of Poland and Mexico, drew attention to the fact that, in his opinion, there were a number of errors in certain maps contained in the report. 368

On the suggestion of the delegate of the USSR, supported by the delegate of France, it was decided that document IOC/INF-407 would be sent out to Member States in all four working languages of the Commission, for comment and notification of errors. 369

The Executive Council would be requested to prepare a report for consideration by the twelfth session of the Assembly, with a view to taking up the matter again when the Third United Nations Conference on the Law of the Sea has completed its work. 370

In introducing a draft resolution concerning the creation of a Regional Centre in South America for Calibration and Standardization of Oceanographic Methods and Techniques, the delegate of Uruguay stressed that at this stage, he and the co-sponsors of the resolution were only asking for the moral support of the Commission for the creation of the Centre and the services of an expert to advise the Government of Uruguay on the development of plans for such a centre. 371

372 Resolution XI-30 (Creation of a Regional Centre for Calibration and Standardization of Oceanographic Methods and Techniques) was adopted unanimously.

373 The Assembly then discussed further the present state of co-operation between the Commission and UNEP, particularly in regard to the Regional Seas Programmes. It was felt that this was in need of improvement and resolution XI-31 (IOC and UNEP Co-operation on Regional Seas Programmes) was adopted unanimously (see also item B.4.1.2 (A.3.4) above).

B.7 PROGRAMME AND BUDGET

B.7.1 Report of Committee V - Programme and Budget

References: resolution X-27;
documents IOC/BUPLAN-I/2 rev.4, IOC-XI/8, MARINF/26

374 The Chairman of Committee V briefly reviewed the work of the Committee, stemming from the steps initiated by the Assembly at its tenth session to review the financial requirements of the IOC's subsidiary bodies and programme (resolution X-27). This review had been accomplished through several stages, culminating in the work of three preparatory committees to the Assembly (Committees I, II and III - see items B.4.1.2, B.4.2.2 and B.4.3.2) and a final review by Committee V. In addition to the review of the IOC programme material, Committee V had also conducted a special review of the draft programme of the Division of Marine Sciences of Unesco, which was valuable in that it begun to demonstrate in a concrete form the interrelationships between the programmes of the IOC and those of the Division of Marine Sciences.

375 He then reviewed the highlights of the Committee's proposals, noting that the Committee had based its work on the document "Draft Programme and Budget for the 1981/1982 Biennium" (document IOC/BUPLAN-I/2 rev.4.). A "Summary of Operational Funds required in 1981-1982", incorporating the proposals contained in document IOC/BUPLAN-I/2 rev.4, as amended by Committee V, is attached as an Annex to resolution XI-33.

Governing and Advisory Bodies: Miscellaneous

376 The Committee's proposals represent an increase of $32,000 Regular Programme (RP), largely through the transfer of the ODAS item from IGOSS as ODAS is of a broader mandate and interest than IGOSS. The section also now covers the subvention to the Permanent Service for Mean Sea Level (PSMSL) (see resolution XI-32).

377 Ocean Science Projects - The Committee V proposals represent an increase in overall support of science of $101,000, which includes some shifting of funds from other activities and the reduction in costs for some programmes, which allows for funding of some new high priority items. The Committee was able to save $4,500 per newsletter through adoption of a new format, allowing the savings to be applied to new high priority items. One of these was the programme on ocean climate approved in resolution XI-3, which requires $50,000 (RP). Likewise, Committee V was able to identify $15,000 (RP) to begin to implement the new programme on living resources approved in resolution XI-17. The Committee was also proposing support for the forthcoming Joint Oceanographic Assembly (JOA) (see resolution XI-38).

The Chairman noted, however, that the projected budget provided for only one meeting of the Scientific Review Board (SRB), rather than the two meetings which had recently been discussed in plenary. In short, the Committee was proposing 33 per cent of the Regular Programme budget for the support of science programmes.

Ocean Service Activities - The Chairman C-V then noted the new thrusts and the reordering found in the IGOSS and IODE programme proposals, representing an increase of $20,000 over BUPLAN, but that this figure is somewhat misleading as the funding for marine pollution monitoring development has been shifted in the budget from IGOSS (services) to GIPME (science). This section also covers ITSU. 378

TEMA - The Chairman C-V went on to note that the Committee had evaluated all of the TEMA-related resolutions and programmes together, rather than with the individual programmes to which many of them relate. It had concluded that there is a pressing need to define better IOC's role in training, and recommended that TEMA-III prepare a statement on this subject. The Committee had proposed that 28 per cent of the Regular Programme budget be allocated for TEMA activities. 379

Unesco Division of Marine Sciences - The Chairman C-V expressed the view that the brief review the Committee had been able to give to the Division's programme had been very useful in beginning to identify the interrelationships between the programmes of the Division and those of the Commission. These are good but they should be kept under continued review in order to strengthen the co-operation between the two units. 380

Subventions - The Chairman C-V reported that under its basic policy, the Commission could only provide funds for activities which relate in particular to the IOC's own programmes. Thus, subventions could be provided only for the advisory bodies SCOR and ECOR, and for the PSMSL the programme of which is in direct support of the new thrust on the ocean climate. 381

Staff - Committee V had concluded that there is an urgent need for a more adequate balance amongst the IOC's staff and had noted in particular the need to augment the Ocean Science Unit. The Committee emphasized to Unesco and the other ICSPRO agencies, and to Member States, the importance of ensuring adequate Headquarters staff for the Commission. 382

The Chairman of Committee V concluded by remarking that the Committee's proposals entailed about a 5 per cent increase over the budget given in document IOC/BUPLAN-I/2 rev.4. 383

The Assembly then undertook a review of the Summary Report of Committee V. The Chairman WC/GIPME noted that this effort was very important to forestall frustration by scientists participating in the IOC programmes and by Member States, and that the programme and budget review process must continue to improve in the future. 384

The delegate of Australia noted with appreciation the examination of the close relationship between the programmes of IOC and the Division of Marine Sciences, which Australia had been pressing for some time. 385

386 The Secretary noted that there is no need for a further ODAS expert meeting, but that a second Preparatory Conference on the Legal Status of ODAS would cost the IOC some $60,000-$70,000. The Group of Experts which had been dealing only with items unrelated to UNCLOS, had now completed its work; the second Preparatory Conference could only be held after the conclusion of UNCLOS. The Chairman C-V suggested that this item might be useful in seeking increased funds from Unesco. The delegate of the USSR, supported by other delegates, raised the importance of provision of interpretation into four languages for the Second Preparatory Conference.

387 The delegate of Norway questioned the need for resolution XI-34 because IOC co-sponsorship of CCCO has already been approved by resolution XI-3 and this implies financial support. The Chairman C-V observed that a number of different views had been expressed in the Committee and it had been concluded that it would be best to have a resolution stating the specific IOC financial commitment to the funding of CCCO, as this does not appear specifically in resolution XI-3.

388 The delegate of France welcomed the provision for a third language for IOCARIBE sessions, because the participation of Member States from outside a region is an important element of regional activities. He noted that French might also be included as a working language in IOCARIBE sessions because France is a member of IOCARIBE and French is one of the carrier languages in the region. He requested the inclusion of a provision for four working languages if this should prove necessary.

389 The delegate of the USSR questioned the reference in the Summary Report under WESTPAC to a "Regional Secretariat", but the delegate of the Philippines recalled that resolution XI-10 called for a Regional Secretary. After some discussion it was clarified that the Secretary would be negotiating for one or more senior full-time staff for WESTPAC from Member States in the region, since staff support for WESTPAC could not be provided on a full-time basis by the small headquarters Science Unit, which had already been noted as being understaffed.

390 The Chairman WC/GIPME designate observed that the 1979-1980 GIPME budget had been increased to $80,000, and that Committee V had now proposed only $81,000 for 1981-1982, a $1,000 increase. He noted that GIPME would be assuming responsibility for marine pollution monitoring development, and doubted that $1,000 would be adequate. The Chairman C-V noted that $34,000 had been transferred from IGOSS for marine pollution monitoring, and that WC/GIPME had requested about $200,000 for its activities. The original BUPLAN figure of $99,000 for GIPME included additional experts which had not been approved by the Assembly, thus the work of the GEMSI group would continue under GIPME. Committee V concluded that the GIPME requests were considerably higher than could be justified, and both increased and decreased individual items within the GIPME budget. He noted that if any increase were to be allocated to GIPME, there would be a need to identify items elsewhere in the budget which could be decreased. The deletate of the United States of America noted that an additional $60,000 is expected from UNEP for GIPME, and that the projected expert meeting will be able to address both the problems envisaged by GIPME and by IGOSS earlier.

The delegate of Senegal questioned whether Committee V had actually identified priorities between TEMA items, as had been proposed. The delegate of the United States of America responded that the Committee had not had time to do this. Such an identification of priorities could be achieved, at least in part, he felt, by an analysis of what had been accomplished within each TEMA programme. The identification of RP items by the Committee, however, at least partially identified TEMA priorities. 391

The delegate of Senegal went on to suggest that the Committee V recommendation to TEMA-III on an identification of IOC's role in "training" should also include "education and assistance". The Assembly agreed. 392

The delegate of Pakistan noted the statement of the Summary Report that expressed Committee V's view that it was not possible to include a specific provision in the budget for equipment. In view of the pressing need for equipment, recognized by Committee V, he proposed that on an experimental basis the IOC allow Member States to submit requests for urgently needed equipment on a modest scale, and that the Secretariat be authorized to meet these requests by reallocations of up to 20 per cent of the TEMA allocations. Pakistan had had direct experience relating to the urgent need for equipment, and he was sure other developing Member States had had similar experiences. The Chairman C-V responded in terms of the IOC's role, noting that it is not within the mandate of IOC to purchase equipment. This would be against Unesco's Rules, and if such an allocation were made the funds would have to be transferred to the Division of Marine Sciences. He noted, however, that the IOC has some flexibility in the use of Trust Funds and suggested that requests for equipment could be made under the TF. He concluded by suggesting that consideration be given to convening an ad hoc meeting possibly at the next EC or Assembly session, of Trust Fund contributors to see if some funds and programmes could be identified to focus the direction of TF use. 393

The delegate of Mexico felt that the question was broader than equipment, going to the transfer of technology, as the problem embraces the transfer of knowledge as well as hardware. He suggested that TEMA-III should address the question of both equipment and transfer of technology. The delegate of Jamaica supported an earlier statement of the delegate of Senegal and pointed out that the lack of equipment is one of the major contributors to the "brain drain". IOC should recognize the fundamental need to provide equipment, both because of the intrinsic need and to alleviate the brain drain. 394

The delegate of Gabon, in agreeing with the Pakistan proposal, expressed the view that the Summary Report implies that nothing can be done by the IOC for the developing countries, a view he deplored. The Chairman WC/GIPME had earlier noted the small amount of funds available for all of IOC needs, and expressed the hope that these funds could be used as a catalyst for meeting broader TEMA needs, including the provision of equipment. The Assembly decided to invite TEMA-III to explore this item as a matter of high priority. It decided that the Commission must also give high priority to the question of providing equipment through the Trust Fund and other extra-budgetary sources, as well as the broader question of tne transfer of technology generally. 395

396 The Assembly then turned to the question of subventions. The President of SCOR saw increased responsibilities for the PSMSL in light of the new climate programme. He observed that the PSMSL data represents the longest time series data, and that there could well be a need to establish new tide gauges. In his view, the $5,000 from FAGS, $8,000 from the United Kingdom, and $12,000 from IOC will not be adequate for the future programme. Thus, he hoped that the IOC could increase the subvention to $20,000 as suggested by the Committee.

397 The delegate of the USSR questioned whether the Division of Marine Sciences subcategory on basic science might be a duplication of the IOC's programme. The Secretary and the Chief of the Division, supported by the delegate of Suriname, pointed out that many organizations have activities devoted to basic science. The IOC and the Division do not carry out the same projects, so there is no duplication in their work. The Division endeavours to develop basic science capabilities of developing countries in the coastal zone where their primary interest lies, and thus the Division's programme is complementary to that of the IOC.

398 The delegate of Ireland questioned the intent of the delegate of Norway in suggesting, in the Summary Report, that the Division should consider climate-related activities in the future. The delegate of Norway responded that he had observed that there was no mention of climate in the Division's draft programme, and, in view of the growing interest in this field, he felt the Division should consider whether it should support any climate-related activities.

399 The Summary Report of Committee V was approved with certain amendments.

400 The Assembly then considered a draft resolution concerning the Permanent Service for Mean Sea Level (PSMSL). The delegate of the United Kingdom stressed the importance of the service and expressed his hope that the additional funds suggested by Committee V could be found. The delegate of the Philippines also supported the resolution in view of the work being conducted by the Service. Resolution XI-32 (PSMSL) was adopted unanimously.

401 The principal resolution drafted by Committee V, (resolution XI-33) "Programme and Budget for the Biennium 1981-1982", was then considered. The delegate of the Federal Republic of Germany, seconded by the delegates of Japan and the United Kingdom, questioned the high figures given in the Annex to the resolution in the column "Member States contributions and Trust Fund", and inquired whether there could be any real expectation of obtaining such sums. He felt that if such figures were based on sound estimates it would provide a stronger incentive to Member States and other possible sources of funding to contribute to the IOC. The Chairman C-V agreed that it is difficult to ascertain what in that column represents cash in hand, what represents funds that are realistically expected, and what represents wishful thinking. He recalled his previous suggestion of an ad hoc meeting of TF contributors, and suggested it would be useful in addressing this question. The Chairman C-V and the Secretary went on to identify some TF figures which represent cash in hand or firm estimates, e.g. Climate, IOCARIBE, WESTPAC, Ocean Services, and the general shipboard training item under TEMA ($50,000 TF is in hand). It was agreed, however, that these comments should be kept in mind in preparing the next BUPLAN document, so that the figures it contains under TF/MS will be as firm as possible. It was also decided that the Secretary should prepare and circulate firmer information on TF/MS figures, including specifically what

funds are available in the Trust Fund, earmarked or not, before the next session of the Executive Council.

Resolution XI-33 (Programme and Budget for the Biennium 1981-1982) was adopted unanimously. 402

Sponsorship by the Commission of the Committee on Climatic Changes and the Ocean (CCCO) was then considered. It was recalled that resolution XI-3 had instructed the Secretary, in consultation with the First Vice-Chairman, to explore the possibility of identifying $50,000 RP out of an overall $600,000 projected for the climate programme. Resolution XI-34 (IOC sponsorship of the CCCO) was adopted unanimously, noting its financial implications of $50,000. 403

The Commission had before it the report of a Task Team set up by EC-XI to develop guidelines for the Commission regarding the programmes of the Division of Marine Sciences of Unesco (see Annex VI). Mr. L.B. Brown (U.S.A.), a member of the Task Team, introduced the document and urged that the report be adopted and that the specific recommendations be implemented by the Assembly. Dr. D.C. Krause, Chief of the Division of Marine Sciences of Unesco, noted the efforts which have been made to keep the Commission fully informed of the work of the Division. However, he stated that due to staff limitations he would be unable to make a special report to each IOC subsidiary body. Thus, they would be receiving the same reports concerning the Division which will be submitted to the Assembly and the Executive Council, except in special cases such as the WC/TEMA. The Assembly agreed that handling the matter in this way would pose no extra burden on the Division and would meet IOC needs adequately. The wording of the resolution was amended to cover the submission to IOC of the Division's biennial and medium-term programme and budget, and the Commission's responsibility to provide comments thereon. The delegate of Gabon observed that, even when the IOC makes comments and recommendations on the Division's programme and budget, it is the General Conference of Unesco that will give final approval to the Division's programme and budget. 404

Resolution XI-35 (Review of the Marine Science Programmes of Unesco) was adopted unanimously. 405

The proposed contribution of the Federal Republic of Germany to the Trust Fund in the amount of 100,000 German marks was then considered. Most of the funds would be earmarked for financing an Advanced Regional Training Course relating to the approved programmes of the Commission. The Assembly expressed its appreciation for this generous contribution to assist with the pressing training needs of the Commission. 406

Resolution XI-36 (IOC - Trust Fund - Contribution from the Government of the Federal Republic of Germany) was adopted unanimously. 407

The delegate of Nigeria recalled his earlier comment on the difficulty for small delegations in attending simultaneous meetings. During this session the number of delegates who could attend the meetings of Committee V which were held simultaneously with the plenary session became progressively smaller. He proposed, therefore, that in future the important Committee V work be dealt with in parallel with the Executive Council session prior to the Assembly. The Chairman agreed that this suggestion would be considered seriously. 408

B.8 UNITED NATIONS AND OTHER INTERNATIONAL CONFERENCES

B.8.1 Third United Nations Conference on the Law of the Sea (UNCLOS)

References: documents IOC/EC-VIII/3, Annex III, IOC/INF-403 and 403 Add.

409 The Chairman reported on the attendance by IOC Representatives at both parts of the eighth session of the Third United Nations Conference on the Law of the Sea (UNCLOS), Geneva, 9 March-27 April and New York, 19 July-24 August 1979, drawing attention to the written reports (documents IOC/INF-403 and 403 Add.).

410 He was particularly pleased with the excellent co-operation of the Vice-Chairmen and the Secretary in arranging an attendance roster, so at most times during the session the Commission was well represented.

411 The Chairman noted in particular the role the Commission was able to play in providing the Conference with maps showing the extent of the continental shelves. The outer delimitation of these is a critical issue, the definition of which is crucial and have economic as well as other consequences on the management of the sea.

412 The delegates of the Netherlands and the Philippines complimented the Chairman for the excellent way in which the Commission has been represented at, and made itself available for providing substantive input to, the Conference.

413 The Assembly unanimously decided that the Commission should be represented at the ninth session of UNCLOS (3 March-4 April and 28 July-29 August 1980), under the same mandate as at the previous session (document IOC/EC-VIII/3, Annex III).

414 The Assembly had before it the publication (IOC Technical Series No. 20):

"A Focus for Ocean Research
Intergovernmental Oceanographic Commission
History, Functions, Achievements"
by Professor Dr. H.U. Roll.

This was received with great appreciation by the Chairman on behalf of the Commission. The delegate of France proposed that this publication should be made available to delegates to the ninth session of UNCLOS.

B.8.2 United Nations Conference on Science and Technology for Development (UNCSTD)

415 The United Nations Conference on Science and Technology for Development was held in Vienna, 20-31 August 1979. The representative of Unesco reported on the outcome of the Conference, during which all nations had had the opportunity to study in depth their science and technology policies, both at the national and international level. A number of recommendations were made and some decisions taken.

416 Among the latter could be noted the adoption of a Programme of Action for the application of Science and Technology to development and the decision to establish a fund of US $250 million to be administered by the United Nations Development Programme to promote such development. Guidelines for

the use of this fund will be set up by the United Nations General Assembly probably before the end of 1979.

The Conference also agreed to establish a new intergovernmental committee for Science and Technology within the United Nations which will oversee the implementation of the Programme of Action. The Committee is to report to the United Nations through ECOSOC. 417

Immediately prior to the Conference, an International Colloquium on Science, Technology and Development was held (Vienna, 13-17 August 1979). The theme was "Needs, Challenges and Limitations". Fifteen working groups were set up by some 250 scientists and engineers. Among the conclusions drawn may be mentioned: 418

the activities of the Commission (IOC), together with the Unesco intergovernmental programmes, were appreciated as being of a broad and interdisciplinary nature thus cutting across many administrative organizations both on national and international levels. Such activities had in general a stimulating effect on scientific development;

it was now time to implement adequate science and technology recommendations adopted in past international fora;

there is still a marked lack of infrastructure in many developing countries for the building up of science and technology.

On a specific question by the Canadian delegation as to how the IOC should approach this possibility of finding funds for TEMA and other activities, Dr. Krause answered that since no detailed terms of reference or guidelines for the use of the fund had been drawn up, this could not yet be answered in a firm way. However, if present practice is followed, the Commission could submit projects, through Unesco, for approval through procedures to be determined by the new Intergovernmental Committee. Resolution XI-37 (Science and Technology for Development) was then discussed and adopted unanimously. 419

B.8.3 United Nations Conference on New and Renewable Sources of Energy (UNERG)

The Secretary provided some background information on the above Conference and also on the formation of a Conference secretariat. He informed the session that eight technical panels had been formed and that responsibility for the Ocean Energy Technical Panel had been given to the Ocean Economics and Technology Office of the United Nations, working in close collaboration with the IOC Secretariat. 420

Each of the eight panels will meet twice and will be expected to carry out a great deal of intersessional work and subsequently some final preparatory work for the Conference. 421

He then reported that following the decision of the Executive Council at its eleventh session, in response to recommendation 13 (d) of WG/FUROF, the IOC would be hosting the first session of the Ocean Energy Technical Panel in Unesco House, 5-9 November 1979. The panel which will consist of experts from Chile, France, India, United Kingdom and the United States of America, will at this first session have to decide on what studies will be needed intersessionally and by whom they should be carried out. 422

423 The Commission expressed its appreciation with the arrangements made.

B.8.4 Joint Oceanographic Assembly

424 The representative of SCOR stated that a firm invitation had now been received for the next JOA to be held in Dalhousie University, Halifax, in 1982. It was suggested that, as before, the Secretary IOC should chair a Logistics Committee composed of members nominated by those United Nations agencies which are willing to provide financial support for the Assembly.

425 Resolution XI-38 (JOA) was adopted unanimously.

B.9 BRUUN MEMORIAL LECTURES

References: documents IOC/EC-XI/3, item 3.2, IOC/INF-406

426 The Bruun Memorial Lectures were presented on the afternoon of Thursday, 1 November, and attended by approximately a hundred delegates. The theme was "The Marine Environment and Ocean Resources".

427 The following lectures were presented:

Non-Living Marine Resources, by Professor Dr. E. Seibold (Federal Republic of Germany);

Ocean Energy, by Dr. K. Takano (Japan);

A Short-term Climatic Change: A Physical Oceanographer's point of view, by Dr. J.S. Godfrey (Australia) (unfortunately Dr. Godfrey was unable to be present - his lecture was therefore read by Dr. D.J. Rochford);

Living Marine Resources, by Dr. D.H. Cushing (U.K.).

428 The First Vice-Chairman, Dr. N.J. Campbell, thanked the distinguished scientists for the interesting lectures, which gave rise to many questions and comments.

429 Short abstracts of these lectures are given in Annex VII; the full papers will be published in the IOC Technical Series in due course.

B.10 DATES AND PLACES OF THE TWELFTH SESSION OF THE ASSEMBLY AND OF THE THIRTEENTH, FOURTEENTH AND FIFTEENTH SESSIONS OF THE EXECUTIVE COUNCIL

Reference: document IOC/EC-XI/3, Annex IV - Appendix

430 In accordance with Rules of Procedure Nos. 4 and 19, the Secretary made the following proposals which were approved by the Commission:

IOC-XII	April 1982	Paris
EC-XIII	June 1980	(host country being negotiated)
EC-XIV	May 1981	(host country being negotiated)
EC-XV	April 1982	Paris (with IOC-XII).

A number of delegates whilst agreeing to the principle of holding preparatory meetings in advance of the plenary sessions, drew attention to the difficulties for delegations from countries not members of the Executive Council caused by holding a Council session between the two parts of the Assembly session. The Secretary pointed out that this had allowed the reports of Committees I, II, III and IV to be finalized and translated in time for them to be approved in plenary the following week (items B.4.1.2, B.4.2.2, B.4.3.2 and B.6.1 above). It had also been a deciding factor in getting the whole of the Summary Report of the session adopted on this occasion during the session (see item B.11 below). 431

The Commission decided to investigate the matter further and the Secretary was instructed to prepare a timetable for the EC-XV and IOC-XII sessions (with reasons for his proposals), for approval by the Executive Council. 432

The delegate of Spain extended an invitation to the Commission to hold the thirteenth session of the Executive Council in his country, subject to completion of the necessary formalities. The Commission accepted the invitation with appreciation. 433

B.11 ADOPTION OF THE SUMMARY REPORT AND RESOLUTIONS OF THE ELEVENTH SESSION OF THE ASSEMBLY

During the process of adopting the Summary Report and resolutions of the session, several delegates made interventions. These have been summarized under the respective agenda items above. 434

The full Summary Report of the session, together with 38 resolutions, was adopted. The Secretary was authorized to complete those parts of the report which it had not been possible to lay before the plenary, without further reference back to the participants. 435

B.12 CLOSURE OF THE SESSION

The Chairman thanked all the participants for their constructive work during the session and for their collaboration as a result of which it had on this occasion been possible to adopt the whole of the Summary Report of the session. 436

Professor W. Langeraar, former Chairman of the Commission, supported by other delegates, expressed the appreciation of the Commission to the retiring Secretary for his work on behalf of the IOC during his period of service. Resolution XI-39 (Expression of Gratitude of IOC Member States to the present Secretary IOC) was adopted unanimously (bringing the total number of resolutions adopted to 39 (see Annex II)). 437

Professor, Dr. H.U. Roll, former First Vice-Chairman of the Commission, drew attention to the fact that Dr. Albert Tolkachev, Head of the Ocean Services Unit of the Secretariat, was also leaving, after eight years in the Secretariat. He spoke with appreciation of the excellent work Dr. Tolkachev had carried out on behalf of the Commission and wished him well in the future. 438

The Chairman closed the session at 13.20 on Saturday, 3 November 1979. 439

ANNEX I

AGENDA

A. Preparatory meetings

A.1 OPENING OF THE SESSION

A.2 ADMINISTRATIVE ARRANGEMENTS FOR THE SESSION

- 2.1 Adoption of the agenda
- 2.2 Formation of Committees; appointment of Chairman and Rapporteurs
- 2.3 Documentation; timetable

A.3 OCEAN SCIENCE - GLOBAL PROGRAMMES

- 3.1 Global Atmospheric Research Programme (GARP)
  - 3.1.1 First GARP Global Experiment (FGGE)
  - 3.1.2 Second GARP Objective (Climate)
- 3.2 Climate
  - 3.2.1 World Climate Programme
  - 3.2.2 SCOR/IOC Committee on Climatic Changes and the Ocean (CCCO)
  - 3.2.3 Scientific requirements for Long-term Ocean Monitoring
- 3.3 General Bathymetric Chart of the Oceans (GEBCO)
- 3.4 Global Investigation of Pollution in the Marine Environment (GIPME)
  - 3.4.1 Scientific Aspects of Marine Pollution Monitoring Programmes

A.4 OCEAN SCIENCE - REGIONAL PROGRAMMES

- 4.1 Investigations of "El Niño"
- 4.2 Co-operative Investigation in the North and Central Western Indian Ocean (CINCWIO)
- 4.3 Western Pacific (WESTPAC)
  - 4.3.1 IDOE Studies on East Asia Tectonics and Resources (SEATAR)
- 4.4 Regional Association for the Caribbean and adjacent regions (IOCARIBE)
- 4.5 Southern Oceans (SOC)

4.6 Co-operative Investigations in the Mediterranean (CIM)

4.6.1 International Bathymetric Chart of the Mediterranean (IBCM)

4.7 Atlantic-Iberian-African (AIA) region

4.8 Ocean science in relation to living resources

A.5 OCEAN SERVICES

5.1 Integrated Global Ocean Station System (IGOSS)

5.1.1 IGOSS Observing System (IOS)

5.1.2 IGOSS Data Processing and Services System (IDPSS)

5.1.3 Marine Pollution (Petroleum) Monitoring Pilot Project (MAPMOPP)

5.2 International Oceanographic Data Exchange (IODE)

5.2.1 Aquatic Sciences and Fisheries Information System (ASFIS)

5.2.2 Marine Environmental Data Information Referral System (MEDI)

5.3 Tsunami Warning System in the Pacific (ITSU)

A.6 TRAINING, EDUCATION AND MUTUAL ASSISTANCE IN THE MARINE SCIENCES (TEMA)

6.1 General Aspects

6.2 Voluntary Assistance Programme (IOC-VAP)

6.3 Components of operational programmes

A.7 GUIDELINES FOR THE STRUCTURE AND RESPONSIBILITIES OF THE SUBSIDIARY BODIES OF THE COMMISSION

A.8 CLOSURE OF THE SESSION

B. Plenary sessions

B.1 OPENING OF THE SESSION

B.2 ADMINISTRATIVE ARRANGEMENTS FOR THE SESSION

2.1 Adoption of the agenda

2.2 Election of Rapporteurs

2.3 Conduct of the session; timetable

2.4 Arrangements for the elections; Nominations Committee

2.5 Documentation, etc.

B.3 STATEMENTS BY THE CHAIRMAN, FIRST VICE-CHAIRMAN AND THE SECRETARY ON INTER-SESSIONAL ACTIVITIES

B.4 OPERATIONAL ACTIVITIES

4.1 Ocean Science

4.1.1 Statement by the Third Vice-Chairman on intersessional activities

4.1.2 Report of Committee I - Ocean Science

4.2 Ocean Services

4.2.1 Statement by the Second Vice-Chairman on intersessional activities

4.2.2 Report of Committee II - Ocean Services

4.3 Training, Education and Mutual Assistance in the marine sciences (TEMA)

4.3.1 Statement by the Fourth Vice-Chairman on intersessional activities

4.3.2 Report of Committee III - TEMA

B.5 BIENNIAL ELECTIONS

5.1 Election for new Officers of the Commission

5.2 Election of Members of the Executive Council

B.6 STRUCTURE OF THE COMMISSION

6.1 Report of Committee IV - Guidelines for the structure and responsibilities of the subsidiary bodies of the Commission

6.2 Future role and functions of the Commission

6.2.1 Proposal for amendment to the Statutes of the Commission

6.2.2 Administrative structure of the Commission and functions of the Secretariat

6.3 Scientific Advisory Board (SAB)

6.4 Regional Co-operation in Marine Science

B.7 PROGRAMME AND BUDGET

7.1 Report of Committee V - programme and budget

B.8 UNITED NATIONS AND OTHER INTERNATIONAL CONFERENCES

8.1 Third United Nations Conference on the Law of the Sea (UNCLOS)

8.2 United Nations Conference on Science and Technology for Development (UNCSTD)

8.3 United Nations Conference on New and Renewable Sources of Energy (UNERG)

8.4 Joint Oceanographic Assembly

B.9 BRUUN MEMORIAL LECTURES ON THE THEME "MARINE ENVIRONMENT AND RESOURCES IN THE OCEAN"

B.10 DATES AND PLACES OF THE TWELFTH SESSION OF THE ASSEMBLY AND OF THE THIRTEENTH, FOURTEENTH AND FIFTEENTH SESSIONS OF THE EXECUTIVE COUNCIL

B.11 ADOPTION OF THE SUMMARY REPORT AND RESOLUTIONS OF THE ELEVENTH SESSION OF THE ASSEMBLY

B.12 CLOSURE OF THE SESSION

ANNEX II

ADOPTED RESOLUTIONS

IOC resolution No.	Agenda item	Title
XI-1	B.2.4	Amendment to the Rules of Procedure Membership of the Executive Council
-2	A.3.1.1/B.4.1.2	IOC Support to Post-FGGE Activities
-3	A.3.2/B.4.1.2	IOC's Role in the Study of Climatic Changes and the Ocean
-4	A.3.3/B.4.1.2	General Bathymetric Chart of the Oceans (GEBCO)
-5	A.3.4/B.4.1.2	Global Investigation of Pollution in the Marine Environment (GIPME)
-6	A.3.4.1) A.5.1.3)/B.4.1.2	Responsibilities for Marine Pollution Monitoring within the Commission
-7	A.4/B.4.1.2	Co-operative Systematic Studies in the North Atlantic
-8	A.4.1/B.4.1.2	Investigations of "El Niño"
-9	A.4.2/B.4.1.2	Scientific Investigations in the North and Central Western Indian Ocean
-10	A.4.3/B.4.1.2	Western Pacific (WESTPAC)
-11	A.4.3.1/B.4.1.2	Joint CCOP-IOC Working Group on IDOE Studies on East Asia Tectonics and Resources (SEATAR)
-12	A.4.4/B.4.1.2	IOCARIBE Regional Secretariat
-13	A.4.5/B.4.1.2	Southern Oceans
-14	A.4.5/B.4.1.2	First BIOMASS Experiment (FIBEX)
-15	A.4.6/B.4.1.2	Scientific Investigations in the Mediterranean
-16	A.4.7/B.4.1.2	Oceanographic Study of the Atlantic-Iberian-African (AIA) Region
-17	A.4.8/B.4.1.2	Ocean Sciences in Relation to Living Resources
-18	A.4.8/B.4.1.2	Marine Science Co-operation on the Atlantic Coast of Africa
-19	A.5.1/B.4.2.2	Integrated Global Ocean Station System (IGOSS)
-20	A.5.2/B.4.2.2	International Oceanographic Data Exchange
-21	A.5.2.1/B.4.2.2	Aquatic Sciences and Fisheries Information System (ASFIS)
-22	A.5.2.2/B.4.2.2	Marine Environmental Data Information Referral System (MEDI)

IOC resolution No.	Agenda item	Title
XI-23	A. 5. 3/B. 4. 2. 2	Associate Director, International Tsunami Information Center (ITIC)
-24	A. 6. 1/B. 4. 3. 1	Structure for the TEMA Activities of the Commission
-25	A. 7/B. 6. 1	Guidelines for the Structure and Responsibilities of the Sudsidiary Bodies of the Commission
-26	B. 6. 2	Possible Sources of Funding for the IOC
-27	B. 6. 2	Selection of IOC Staff Officers
-28	B. 6. 2	Major Directions for the Commission's Future Programme
-29	B. 6. 3	The IOC Scientific Review Board
-30	B. 6. 4	Creation of a Regional Centre for Calibration and Standardization of Oceanographic Methods and Techniques
-31	B. 6. 4	IOC and UNEP Co-operation on Regional Seas Programmes
-32	B. 7. 1	Permanent Service for Mean Sea Level (PSMSL)
-33	B. 7. 1	Programme and Budget for the Biennium 1981-1982
-34	B. 7. 1	IOC Sponsorship of Committee on Climatic Changes and the Ocean (CCCO)
-35	B. 7. 1	Review of the Marine Science Programmes of Unesco
-36	B. 7. 1	IOC Trust Fund - Contribution from the Government of the Federal Republic of Germany
-37	B. 8. 2	Science and Technology for Development
-38	B. 8. 4	Joint Oceanographic Assembly
-39	B. 11	Expression of Gratitude of IOC Member States to the present Secretary IOC

Resolution XI-1

AMENDMENT TO THE RULES OF PROCEDURE

MEMBERSHIP OF THE EXECUTIVE COUNCIL

The Intergovernmental Oceanographic Commission,

Having received a request from the Governments of the Netherlands, Philippines, Federal Republic of Germany, Canada and India,

Taking into account the provisions of paragraph 4(b) of Article 5 of the IOC Statutes which states that membership of the Executive Council shall not exceed one-fourth the number of the members of the Commission,

Noting that, at the present time 103 States are members of the Commission, thus allowing the membership of the Executive Council to be increased up to a total of 25 members,

Decides that, under Rule of Procedure No. 57, Rule of Procedure No. 18, paragraph 1, shall be amended to read as follows:

"1. The Executive Council shall consist of the Chairman, the four Vice-Chairmen and the representatives of twenty Member States of the Commission ... etc.".

Implications for the IOC budget: None

Resolution XI-2

IOC SUPPORT TO POST-FGGE ACTIVITIES

The Intergovernmental Oceanographic Commission,

Recalling the many resolutions of the Executive Council and the Assembly, including resolutions IX-6, IX-7, EC-VIII. 2, X-5, EC-X. 5, EC-X. 6 and EC-XI. 2, to encourage Member States to participate in various oceanographic aspects of the First GARP Global Experiment (FGGE),

Noting that the operational phase of the First GARP Global Experiment, 1 December 1978 to 30 November 1979, is almost at an end and also that this Experiment contained many components of interest to the oceanographic community,

Further noting the substantial contribution made by the oceanographic programme of the FGGE to the overall work of GARP,

Acknowledges with appreciation, the support of all Member States which contributed to the oceanographic aspects during the operational phase of the FGGE to date, and in particular the organizers and participants of SCOR WG-47, "Oceanographic programmes during the FGGE";

Noting that the field phase of FGGE has already produced a large quantity of oceanographic data which will be, or could be, used to further research by scientists of Member States,

Recognizing that at the present time and in the near future the most important factor for the further execution of the GARP programme objectives is a comprehensive and thorough exchange of FGGE data and information at all levels, in accordance with the agreed FGGE data management plan,

(1) Requests SCOR to prepare proposals concerning the evaluation and presentation of the data resulting from the FGGE oceanographic programme;

Encourages Member States to continue supporting post-FGGE activities including:

(a) oceanographic research using the FGGE data sets;

(2) (b) participation of scientists from developing countries in post-FGGE oceanographic research;

(c) participation in the IODE/RNODC-FOY type of effort by providing inventory information for inclusion in the Global Ocean Data Inventory, and data for inclusion in the Global Ocean Climate Data Base;

(3) (d) continued participation in the relevant part of regional programmes of the Global Atmospheric Research Programme, including WAMEX, MONEX and ALPEX;*

Invites the Chairman of the Working Committee on IODE, in co-operation with the IOC and WMO Secretariats, to examine the effectiveness of the efforts from the RNODC-FOY, and to make recommendations as to whether or not this activity should be continued for the oceanographic data collected for the World Climate Programme of WMO;

Requests the Chairman of the Joint IOC/WMO Working Committee for IGOSS, in co-operation with the IOC and WMO Secretariats:

(i) to evaluate the usefulness and effectiveness of these contributions, and to consider the advisability of continuing this approach for other future programmes, particularly the Ocean Monitoring Programme of the World Climate Programme;

(ii) to report to the thirteenth session of the Executive Council on the Member States' contributions to the IGOSS programme for the FGGE.

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* WAMEX: West African Monsoon Experiment.
MONEX: Monsoon Experiment.
ALPEX : Alpine Experiment.

Implications for the IOC budget:

(1)	$ 2,000	(1981-1983)
(2)	$ 6,000	(1981-1983)
(3)	$ 2,000	(1981-1983)
Total:	$10,000	(1981-1983)

Resolution XI-3

IOC'S ROLE IN THE STUDY OF CLIMATIC CHANGES AND THE OCEAN

The Intergovernmental Oceanographic Commission,

Noting resolution 29 (Cg-VIII) "World Climate Programme" adopted by the Eighth World Meteorological Congress,

Noting in particular that WMO, through resolution 29 (Cg-VIII):

(i) recognized that the oceans play a major role in climate variation, and

(ii) that the Secretary-General of WMO has been requested to invite the collaboration of other appropriate bodies of the United Nations family, in particular that of Unesco, and to promote effective co-ordination among them,

Recalling the resolutions of the Executive Council and of the Assembly, in particular IX-6, X-5 and EC-X.4 in support of the various aspects of the Global Atmospheric Research Programme (GARP) and especially the climate objectives of GARP,

Also recalling the activities of the ad hoc Task Team to prepare the necessary oceanographic components of GARP (ref. resolution IX-6), particularly the climate portion (IOC Technical Series No.17),

Recognizing that the longer term variability of the oceans, or ocean climate, has important consequences to the living resources of the sea,

Further recognizing that the variability of the ocean also has a major impact on the climate and that in particular noting that the variations in the world's tropical oceans may be of special significance,

Being aware that involvement of the Commission in programmes concerning climate necessarily entails a long-term commitment of resources which must be continued for some decades in order to achieve some measure of progress,

Affirms that studies of climatic changes and the ocean will form a major programme of the Commission and that this programme involves significant participation from all subsidiary bodies of the Commission, but in particular from IGOSS, IODE and TEMA;

(1) Decides to co-sponsor the SCOR/IOC Committee on Climatic Changes and the Ocean (CCCO);

Requests the CCCO to develop means of collaboration with the Joint Scientific Committee (JSC) of the Climate Change and Variability Research Programme (CRP) of the World Climate Programme;

Requests also the CCCO to take the lead in recommending and developing the components, programmes and arrangements necessary for the oceanographic portion of climate programmes, including:

(i) (a) definition of the oceanographic experiments necessary for atmospheric and ocean climate research, as well as the identification and development of requirements for long-term ocean monitoring;

(b) evaluation of proposals for ocean monitoring programmes resulting from the first meeting of the JOC/SCOR Group on the Pilot Ocean Monitoring Study (Miami, U.S.A., 1-5 October 1979);

(2) (ii) symposia and workshops on oceans and climate, in collaboration with JOC/JSC when appropriate;

(iii) identification of advanced technology applications such as from satellites, acoustic tomography and drifting buoys, which could be used in the oceanographic programme in support of the World Climate Programme;

(iv) development of proposals for programmes on marine ecological climate studies, palaeoclimate of the ocean, sea ice variability studies and studies of the role of the ocean in the carbon dioxide cycles;

(v) further work on theory and modelling of ocean dynamics relating to problems of climate research;

(vi) identification of those climate activities of particular relevance to oceanography in developing countries;

(3) Calls upon the Joint Working Committee for IGOSS and the Working Committee on IODE to act on the data management recommendations of the CCCO, paying particular attention to defining and implementing monitoring and timely exchange mechanisms for climate oceanographic data and products;

(4) Instructs the Secretary to investigate ways and means of strengthening the support of the Commission to the Permanent Service for Mean Sea Level (PSMSL);

(5) Further instructs the Secretary to co-ordinate the implementation of a TEMA programme for climate as identified by Member States;

Also instructs the Secretary to transmit this resolution and its implications to the Secretary-General of WMO and, in particular, to:

(6) (i) develop appropriate arrangements between IOC and WMO to ensure the active participation of IOC in the World Climate Programme (WCP);

(ii) notify the Secretary-General of WMO of the intention of IOC to act as the intergovernmental body responsible for the oceanographic aspects of the World Climate Programme (WCP); and

(iii) suggest that CCCO be accepted by JSC as the body responsible for ocean research components of the World Climate Programme (WCP);

Urges Member States to play an active role in the oceanographic aspects of the World Climate Programme by intensifying their national efforts in all components and by arranging adequate oceanographic participation in their national climate, or similar committees;

Invites the Director-General of Unesco, in consideration of this resolution and the fundamental relationship between the ocean and climate, and the fundamental importance of the of the ocean climate itself:

(i) to give high priority to the programmes of the Commission in the overall support of Unesco to the World Climate Programme; and

(ii) to seek the additional funds required for this Programme from the Member States, or to increase to the extent necessary the additional regular programme funds required to carry out the activities of the Commission in support of climate, in particular the Joint SCOR/IOC Committee on Climatic Changes and the Ocean (CCCO);

Instructs the Secretary, in consultation with the First Vice-Chairman, to explore the possibility of identifying $50,000 of the required support to CCCO for redistribution of IOC regular programme funds;

Further instructs the Secretary to report on this matter to the thirteenth and fourteenth sessions of the Executive Council, and to the twelfth session of the Assembly.

Implications for the IOC budget:

(1)	$ 36,000	(1981-1983)
(2)	$ 19,000	(1981-1983)
(3)	$ 18,000	(1981-1983)
(4)	$ 30,000	(1981-1983)
(5)	$ 17,000	(1981-1983)
(6)	$ 19,000	(1981-1983)
Total:	$139,000	(1981-1983)

Resolution XI-4

GENERAL BATHYMETRIC CHART OF THE OCEANS (GEBCO)

The Intergovernmental Oceanographic Commission,

Having been informed that the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans (GEBCO) held its sixth session in the headquarters of the Canadian Hydrographic Service, Ottawa, 21-23 May 1979,

Expresses its appreciation to the Government of Canada for its courtesy and generosity in hosting the session;

Approves the Summary Report and recommendation of the session (document IOC-IHO/GEBCO-VI/3);

Noting that, as requested in resolution X-6, the Joint IOC-IHO Guiding Committee and the United Nations Group of Experts on Geographical Names have developed and agreed upon a joint list of terms and definitions of undersea features for international use (Annex IV B to the above Summary Report),

Approves the joint list and accompanying proposed guidelines for the standardization of undersea feature names for national use; and

Instructs the Secretary to distribute these widely to Member States of the Commission;

Noting that at its tenth session, the Executive Council accepted a request from the Third United Nations Conference on the Law of the Sea to carry out two tasks (ref. resolution EC-X. 8),

Having been informed that these tasks are now completed and that the Secretariat of the Conference has expressed satisfaction with the results,

Expresses its appreciation to the members of the ad hoc Working Group to Study the Implications of Preparing Large-scale Maps for the Third United Nations Conference on the Law of the Sea (UNCLOS).

Implications for the IOC budget: None

Resolution XI-5

GLOBAL INVESTIGATION OF POLLUTION IN THE MARINE ENVIRONMENT (GIPME)

The Intergovernmental Oceanographic Commission,

Recalling resolutions X-7, X-8 and EC-X. 7,

Recognizing the need to continue the development of the GIPME programme, along the lines recommended by the third session of the Working Committee for GIPME (document IOC/WC-GIPME-III/3S),

(1) Requests the Working Committee for GIPME to take further steps to accelerate the implementation of the Comprehensive Plan for the Global Investigation of Pollution in the Marine Environment, to provide continuing scientific and technical guidance on marine pollution monitoring programmes within the Commission and provide a sound scientific basis for the assessment and regulation of marine pollution;

(1) Reaffirms its decision in resolution EC-XI.11, which, with Recommendation JWC-IGOSS-I.1, describes in detail the essential actions to be taken before and during the Third IOC/WMO Workshop on Marine Pollution Monitoring (New Delhi, 11-15 February 1980), to establish a marine pollution monitoring system (MARPOLMON) on a permanent basis;

(1) Instructs the Secretary to carry out a study of the various ways in which scientific and technical guidance can be provided to the Commission on the development of baseline studies and marine pollution monitoring programmes and to present his recommendations to the Executive Council at its thirteenth session;

(2) Requests the Working Committee on IODE, with the assistance of the Working Committee for GIPME, to accelerate its development of improved procedures for the international exchange of data concerning the pollution of the marine environment;

Further requests the Working Committee for GIPME to promote the research needed to provide GESAMP with inputs for its periodical reports on the health of the ocean;

(3) Instructs the Secretary to arrange for representatives of the Working Committee for GIPME to participate more fully in the GESAMP Working Group on a Review of the Health of the Oceans;

Further recognizing that coastal States, in the event of major pollution accidents in the ocean, might benefit from the assistance and co-operation of oceanographic experts in analysing and dealing with the effects of such accidents, which may not be available from other international organizations,

Instructs the Secretary, with the assistance of the Working Committee for GIPME, to prepare, for submission to the Executive Council at its fourteenth session, a paper outlining options through which expert assistance on the scientific aspects of major pollution accidents in the ocean might be provided to its Member States in co-ordination with the related activities of other appropriate international organizations;

(4) Further instructs the Secretary to find ways and means of supporting a specific TEMA programme, required to implement MARPOLMON and other GIPME activities, in order to ensure improved participation by developing countries and to report to the Executive Council at its thirteenth and fourteenth sessions on progress achieved.

Implications for the IOC budget:

(1)	$41,000	(1981-1983)
(2)	$ 5,000	(1981-1983)
(3)	$ 3,000	(1981-1983)
(4)	$39,000	(1981-1983)
Total:	$88,000	(1981-1983)

Resolution XI-6

RESPONSIBILITIES FOR MARINE POLLUTION MONITORING WITHIN THE COMMISSION

The Intergovernmental Oceanographic Commission,

Recognizing the importance of the marine pollution activities within the Commission's programmes, and the need for a clear mandate within the Commission for these responsibilities,

Reconfirms that the responsibility for the marine pollution activities of the Commission should rest with the Working Committee for GIPME;

Decides to transfer, subject to the concurrence of WMO, the responsibilities for MAPMOPP and any subsequent marine pollution monitoring programme (e.g. MARPOLMON) to the Working Committee for GIPME;

Instructs the Secretary to inform the Secretary-General of WMO of this decision with a view to securing his agreement to this change;

Requests the Joint Working Committee for IGOSS, the Working Committee on IODE, and the Working Committee for TEMA to co-operate with the Working Committee for GIPME in the development of the marine pollution monitoring programmes of the Commission.

Implications for the IOC budget: None

Resolution XI-7

CO-OPERATIVE SYSTEMATIC STUDIES IN THE NORTH ATLANTIC

The Intergovernmental Oceanographic Commission,

Recalling its decision to work jointly with the Secretariats of ICES and ICNAF on co-operative systematic studies in the North Atlantic, taken at the fifth session of the Comission (resolution V-13),

Notes with satisfaction that there now exists a continuous and effective working contact between the Secretariats of IOC, ICES and ICNAF/NAFO;

Notes further with satisfaction that the three Secretariats, through periodic consultations with leaders of the large international projects in the North Atlantic, have well-established contacts between these projects, whether they have been carried out under the auspices of one (or more) of the organizations, or independently;

Stresses the need for such continued exchange of ideas, data, project information and planning of internationally co-ordinated exercises;

(1) Considers the possibility of providing for this by inviting the management of the different projects to send observers to the ICES Statutory Meeting each year to give a short presentation in the appropriate committees of their work, and thus allow a frank and free flow of information;

Instructs the Secretary to explore with the Secretariats of ICES and NAFO the most suitable means for maintaining such contact in the future.

Resolutions IV-14, V-13 and VI-11 are consequently cancelled.

Implications for the IOC budget:

(1) $6,000 annually

Resolution XI-8

INVESTIGATIONS OF "EL NIÑO"

The Intergovernmental Oceanographic Commission,

Recalling resolution EC-XI.8,

Observing that the project Estudio Regional del Fenómeno "El Niño" (ERFEN) has the support of the Member States participating in it, as well as that of the Comisión Permanente del Pacffico Sur (CPPS),

Noting the multidisciplinary and multisectoral nature of ERFEN, and the importance of the Investigations of "El Niño" to the future World Climate Programme,

Observing that in the various components of ERFEN, provision has been made for the necessary link with the global programmes being carried out by the Specialized Agencies of the United Nations and other extra-regional programmes related to "El Niño",

Bearing in mind the importance attached by the countries of ERFEN to the need to ensure the efficiency of the project and promote the development of the marine sciences in the region, for which purpose a TEMA component of ERFEN has been developed,

Taking into account the fact that a UNDP regional project was referred to IOC by the member countries of CPPS in order to determine the methods by which it may be financed,

Noting with satisfaction the results of the first session of the Joint IOC/WMO/CPPS Working Group on the Investigations of "El Niño",

Further noting with appreciation the action taken by WMO to follow up relevant recommendations of the above session, particularly by convening an Implementation Co-ordination Meeting in Quito, Ecuador, in November 1979,

Urges UNDP to assign priority support to the ERFEN project;

Requests the Secretary, in co-ordination with CPPS and the agencies concerned in the Investigations of "El Niño", to take the most active steps vis-à-vis UNDP in order to obtain financing for ERFEN;

Urges Member States to make contributions to the IOC Trust Fund earmarked for the implementation of the TEMA component of ERFEN;

Invites WMO, Unesco (Division of Marine Sciences), FAO and other agencies involved in the activities of ERFEN, together with the OAS, to continue and increase their support for the implementation of this project, particularly as regards the elements included in the TEMA component of ERFEN, whether under their regular programmes or through other sources of support;

Further invites the Committee on Climatic Changes and the Ocean (CCCO) to take into account the investigations of "El Niño" in the development of the programme entrusted to it by resolution XI-3;

(1) Instructs the Secretary in co-ordination with the Chairman of the Joint Working Group, and the WMO and CPPS Secretariats, to make the necessary arrangements for holding the second session of the Joint Working Group during the last quarter of 1980 in Ecuador, and to request this group to examine the progress of regional and non-regional investigations of "El Niño", with a view to reporting on this to the Executive Council at it fourteenth session;

Further instructs the Secretary to continue his efforts to implement the remaining matters included in resolution EC-XI. 8.

Implications for the IOC budget:

(1) $11,000 (1980)

Resolution XI-9

SCIENTIFIC INVESTIGATIONS IN THE NORTH AND CENTRAL WESTERN INDIAN OCEAN

The Intergovernmental Oceanographic Commission,

Recalling resolutions X-3 and EC-X. 10,

Noting with satisfaction that a meeting of the countries of the Co-operative Investigation in the North and Central Western Indian Ocean (CINCWIO) region to initiate planning for scientific investigations in the North and Central Western Indian Ocean, was held in the Unesco Regional Office for Science and Technology for Africa, Nairobi, Kenya, 5-9 March 1979,

Expresses its appreciation to the Director-General of Unesco, and in particular to the Director of the Unesco Regional Office for Science and Technology for Africa (Nairobi,

Kenya) for hosting the above meeting, and to the participants in the meeting for their expressed interest in, and commitment to, the adopted parts of the proposed scientific programme;

Adopts in principle the Executive Summary and Recommendations of the above meeting (document IOC/CINCWIO ad hoc/3); and

(1) Decides to form a Technical Advisory Group for CINCWIO, consisting of marine science experts both from within and outside the region, to provide, as and when necessary, sound scientific advice and guidance for the execution of the programme;

Recommends that any Member State who may wish to do so may participate in this programme and in the work of relevant organizations;

Noting the offer of SCOR (document IOC/EC-XI/3, item 6.2) to form a multidisciplinary group to consider scientific problems and the development of a scientific programme,

(2) Requests SCOR, in consultation with ACMRR to advise on the composition of the Technical Advisory Group for CINCWIO, the first task of which will be to re-examine and identify the outstanding scientific problems in the area which might form the foundation of a more precise and relevant research programme to be developed jointly by participating Member States, and to report to the Executive Council at its thirteenth session;

Invites the Director-General of Unesco to investigate the possibilities of strengthening the staff of the Unesco Regional Office for Science and Technology for Africa (Nairobi, Kenya) by the addition of a marine science expert to assist in the planning, co-ordination and execution of the CINCWIO activities;

(3) Decides to establish a Programme Group for CINCWIO consisting of one or two active marine scientists from each country in the region and other interested Member States which may wish to participate in the programme;

(4) Instructs the Secretary, in consultation with the countries of the region to identify the TEMA needs of the countries of the CINCWIO region and to accelerate all its pertinent elements with the development of the co-operative investigations;

Requests the Executive Council at it thirteenth session to define Terms of Reference for the Programme Group for CINCWIO, taking into account the recommendations of the Technical Advisory Group for CINCWIO;

Further instructs the Secretary to continue supporting ongoing marine research in the region, particularly by calling the attention of potential donor Member States to the needs of the countries of the region, especially those relating to the development of marine science teaching capabilities of all the universities in the region at least to the level of the Master of Science degree, the possibility of establishing an Oceanographic Support Centre within the region, and the proper manning of the available research vessels.

Implications for the IOC budget:

	(1)	$19,000 (1981-1983)
	(2)	$12,000 (1980)
	(3)	$36,000 (1981-1983)
	(4)	$36,000 (1981-1983)
Totals:		$12,000 (1980)
		$91,000 (1981-1983)

Resolution XI-10

WESTERN PACIFIC (WESTPAC)

The Intergovernmental Oceanographic Commission,

Having examined the results of the work of the first session and the decisions of the Working Group for the Western Pacific (document IOC/WESTPAC-I/3S),

Stresses the importance and necessity of a comprehensive scientific study of the Western Pacific, deepening and broadening the investigations carried out under the successfully completed programme for the Co-operative Study of the Kuroshio and adjacent regions;

Approves the main lines of the scientific programme for WESTPAC as submitted by the Chairman of the Working Group for WESTPAC;

Invites interested Member States to co-operate in the implementation of the programme and to play a direct part in it;

Requests the Working Group to develop, with the collaboration of the Secretary, detailed plans for the execution of the programme of investigations adopted by the Working Group at its first session;

Instructs the Secretary to arrange for secretariat services to be provided for WESTPAC initially consisting of at least one full-time senior professional;

Requests the Scientific Review Board to keep the scientific programme for WESTPAC under review and to report on its conclusions to the Assembly as appropriate.

Implications for the IOC budget: None

Resolution XI-11

JOINT CCOP-IOC WORKING GROUP ON IDOE STUDIES ON EAST ASIA TECTONICS AND RESOURCES (SEATAR)

The Intergovernmental Oceanographic Commission,

Noting that the fourth session of the Joint CCOP-IOC Working Group on IDOE Studies of East Asia Tectonics and Resources (SEATAR) was held in Singapore, 26 October 1978, and the fifth session in Bandung, Indonesia, 7-8 October 1979,

Noting further that SEATAR, at its fourth session, accepted in principle the report and recommendations of the Second CCOP-IOC Workshop on IDOE Studies and Resources, Bandung, Indonesia, 17-21 October 1978,

Endorses the reports and the recommendations contained therein, of the fourth and fifth sessions of the Joint Working Group;

Taking note that CCOP, at its fifteenth session in 1978, endorsed the SEATAR recommendation that "the working period of the Joint Group be extended beyond the end of the International Decade of Ocean Exploration on 31 December 1980", and that therefore "the mandate of the Joint Group be revised",

Taking further note that CCOP, at its sixteenth session, in 1979, adopted a revised mandate and name for the Joint Working Group,

Approves the revised name viz. Joint CCOP-IOC Working Group on Post-IODE Studies on East Asia Tectonics and Resources (SEATAR), and, provisionally, the revised terms of reference as given in the following Annex;

Instructs the Secretary to distribute to Member States the Programme of Research as further developed by the Bandung Workshop, in 1978; and

Invites the Executive Council at its thirteenth session, after having considered the Programme, to give final approval to the revised terms of reference.

Implications for the IOC budget: None

Annex to resolution XI-11

JOINT CCOP-IOC WORKING GROUP ON POST-IDOE STUDIES ON EAST ASIA TECTONICS AND RESOURCES (SEATAR)

Terms of reference

The Joint CCOP-IOC Working Group on Post-IDOE Studies on East Asia Tectonics and Resources is:

(i) to facilitate and expedite the various activities undertaken under the Programme of Research, as further developed by the Second CCOP-IOC Workshop on IDOE Studies of East Asia Tectonics and Resources, Bandung, Indonesia, October 1978;

(ii) to evaluate and assess the results of projects contained in the Programme of Research, as they become available;

(iii) to ensure the continued updating of the Programme of Research in the light of the above evaluation and assessment;

(iv) to facilitate exchange of data collected, and to ensure dissemination of its scientific results;

(v) to assess the scientific needs of the participating States in the region on a continuing basis;

(vi) to provide advice to participating States on the development of their capabilities and facilities for the project;

(vii) to act as a joint mechanism between CCOP and IOC's WG/WESTPAC for the implementation of common projects.

Resolution XI-12

IOCARIBE REGIONAL SECRETARIAT

The Intergovernmental Oceanographic Commission,

Recalling that, by resolution IX-13, the Commission established the IOC Association for the Caribbean and adjacent regions (IOCARIBE) on an experimental basis for a period of six years,

Recalling also that resolution IX-13 invited the Director-General to take the necessary steps to establish a Regional Secretariat which, it was decided, would be co-located with the elected Chairman of the Association,

Recalling further that the Regional Secretariat was located in Trinidad and Tobago from July 1976 to April 1979, at which time it moved to Costa Rica, the home country of the second elected Chairman,

Expresses its deep appreciation to the Government of Trinidad and Tobago for undertaking host country responsibilities and for generously providing operational support and services to the Regional Secretariat for a period of nearly three years.

Implications for the IOC budget: None

Resolution XI-13

SOUTHERN OCEANS

The Intergovernmental Oceanographic Commission,

Having received the report of the Secretary on the state of implementation of the Programme of the International Co-ordination Group for the Southern Oceans (ICG/SOC),

Believing that these international activities are of sufficient importance and interest to Member States to justify the Commission's continued involvement in marine scientific research programmes in the region,

Decides to retain the existing Group under the new name of the "Programme Group for the Southern Oceans";

Considering that many of the needs for scientific studies of the Southern Oceans have changed substantially since the ICG was first established, and that the Commission now has new and expanded responsibilities relating to climate and living marine resources,

Invites the Member States of the PG/SOC to review the present terms of reference of the Group and to forward appropriate comments and amendments thereto to the Secretary in time for these to be collated and presented to the Executive Council at its thirteenth session.

Implications for the IOC budget: None

Resolution XI-14

FIRST BIOMASS EXPERIMENT (FIBEX)

The Intergovernmental Oceanographic Commission,

Recalling resolution X-12,

Noting the developments of the BIOMASS planning for the First BIOMASS Experiment (FIBEX) in 1980-1981,

Invites Member States to participate actively in the programme planning activities in 1980, and to participate in the implementation of FIBEX;

(1) Instructs the Secretary to consult with the sponsors of FIBEX to determine the nature and extent of IOC support requested for FIBEX planning activities;

(1) Authorizes the Secretary to respond positively to such requests provided they are consistent with the intentions expressed in resolution X-12 and can be supported out of existing funds.

Implications for the IOC budget:

(1) to be decided

Resolution XI-15

SCIENTIFIC INVESTIGATIONS IN THE MEDITERRANEAN

The Intergovernmental Oceanographic Commission,

Taking into consideration resolution EC-X. 3 and the information supplied by the Secretary of the Commission regarding the results of discussions with the Member States concerned about the problems of conducting scientific investigations in the Mediterranean, the organizational structure of the subsidiary bodies of the Commission in that region, and the urgency of carrying out scientific programmes,

Recognizing the large number of scientific programmes and other activities relating to the marine sciences being carried out in that region at national level,

Also recognizing the large number of scientific projects carried out in the region at the international level, particularly by UNEP, the International Commission for the Scientific Exploration of the Mediterranean Sea (ICSEM) and other organizations,

Further recognizing the inadequacy of the Commission's participation in the organization and co-ordination of international marine science projects in the Mediterranean region,

Decides, taking into account the agreement already expressed by the other two co-sponsoring organizations, to abolish the International Co-ordination Group and the Group for Technical Co-ordination of the Co-operative Investigations in the Mediterranean (CIM);

(1) Decides further to maintain in its present location an Operational Unit for the Mediterranean, and calls on this Unit to co-operate with other organizations, such as UNEP and ICSEM, so as to assist in the execution of their ongoing research programmes in this region particularly for developing countries, as well as any such programmes that may be developed in the future;

Requests Member States interested in the above research programmes to designate National Correspondents of the Commission in order to maintain liaison with the Operational Unit and the Secretariat.

Implications for the IOC budget:

(1) $45,000 (1981-1983)

Resolution XI-16

OCEANOGRAPHIC STUDY OF THE ATLANTIC-IBERIAN-AFRICAN (AIA) REGION

The Intergovernmental Oceanographic Commission,

Having received a project proposal made by the Portuguese delegation on behalf of the riparian countries of the Atlantic-Iberian-African (AIA) region for a joint oceanographic study in the region,

Recalling that this was discussed by the IOC Executive Council at its tenth session (document IOC/EC-X/18 rev.),

Taking into account the comments made by SCOR at its fourteenth General Meeting (Brest, France, 13-18 November 1978),

Taking also into account additional proposals on environmental studies in support of living resources,

Noting that some of the programme details have already been identified by the countries of the region, but that further development is necessary for an integrated programme,

Invites the co-ordinator of AIA to develop an integrated programme in consultation with the countries of the region and other interested Member States, identifying clearly the national priorities, expected inputs from the participants and the extent of support requested from the international and regional bodies;

Commends the countries of the region for initiating such a regional programme, and encourages the participating countries to continue their activities during the period required for the full development of the programme;

Recommends that, when ready, the detailed research programme be reviewed by the relevant advisory bodies of the IOC (SCOR and ACMRR), and that the final draft of the programme, and the detailed plan of operation, be submitted by the Secretary to the twelfth session of the IOC Assembly for further consideration.

Implications for the IOC budget: None

Resolution XI-17

OCEAN SCIENCES IN RELATION TO LIVING RESOURCES

The Intergovernmental Oceanographic Commission,

Recognizing the vital need for adequate understanding of the relationships between ocean environmental variability and fish stocks, and recognizing further that IOC activities in ocean science can enhance and complement the study of living resources,

Realizing the need for close collaboration among the Commission, the Food and Agriculture Organization and their advisory bodies in developing an appropriate scientific programme plan for ocean science activities in support of living resources research,

Decides to undertake development of plans for a major programme of the Commission on oceanographic studies of the marine ecological conditions in relation to fish stocks, as referred to in document IOC-XI/20;

Requests ACMRR and SCOR in consultation with the Vice-Chairman for Ocean Science to develop a comprehensive scientific programme plan and project proposals for research

projects aimed at understanding the marine ecosystems complementary to, and in support of, fisheries research and development as sponsored by the FAO;

Instructs the Secretary to:

(i) inform the FAO of this decision with a view to obtaining its agreement to collaborate in this initiative;

(ii) arrange for the appointment of a Rapporteur from IOC, and to discuss the appointment of a Rapporteur by FAO, to develop through correspondence an inventory of information on this subject;

(1) (iii) arrange, in collaboration with FAO and interested countries, consultations of experts from ACMRR and SCOR and interested Member States in 1980 and 1981 in order to develop the scientific programme plan and initial project proposals to be submitted to the Commission prior to the twelfth session of the IOC Assembly (April 1982);

(iv) report to the Executive Council at its fourteenth session on the status of development of the scientific programme plan requested above;

(v) develop, publish and distribute guidelines for interested Member States to follow in submitting specific TEMA needs for participation in the programme area when the scientific programme plan is available; and

(vi) prepare proposals as to how these TEMA needs can be satisfied.

Implications for the IOC budget:

(1) $25,000 (1981-1983)

Resolution XI-18

MARINE SCIENCE CO-OPERATION ON THE ATLANTIC COAST OF AFRICA

The Intergovernmental Oceanographic Commission,

Considering that in most countries of the Atlantic coast of Africa existing oceanographic research efforts are meant to back up fisheries development programmes,

Further considering the great importance and yet low state of development of marine science in relation to various uses, especially living resources, in these countries,

Noting that most of these countries still lack the capabilities of participating in IOC programmes,

(1) Instructs the Secretary, in collaboration with the Division of Marine Sciences of Unesco, to arrange for a Workshop on Marine Science Co-operation to be held in this region in order to provide the basis for a Marine Science Association for countries of the Atlantic coast of Africa and any other IOC Member State interested, and to report to the twelfth session of the Assembly.

Implications for the IOC budget:

(1) $12,000

Resolution XI-19

INTEGRATED GLOBAL OCEAN STATION SYSTEM (IGOSS)

The Intergovernmental Oceanographic Commission

Recalling the establishment of the Joint IOC/WMO Working Committee for IGOSS through resolution X-22 of the tenth session of the Assembly and WMO resolution 8 (EC-XXIX), with the aim of strengthening co-operation and co-ordination in the development and implementation of IGOSS both on national and international levels,

Noting the pertinent resolutions of IOC regarding IGOSS since the establishment of the Joint Working Committee, namely, EC-XI. 11 and 12,

Noting with appreciation the recent support to IGOSS expressed by the Eighth World Meteorological Congress through its resolutions 12 and 13 (Cg-VIII), and by the WMO Executive Committee, resolutions 7 and 8 (EC-XXXI), and in particular for the continued support to IOC in seconding a Scientific Officer and contributing half the cost of the needed secretarial support,

Expressing its satisfaction with the steady progress of the oceanographic services programme within the framework of the Integrated Global Ocean Station System (IGOSS), and with the increase of demands for expanded and more specialized marine environmental services for various marine activities and research programmes,

Stressing the need for close co-ordination of IGOSS programme activities with other marine research programmes of the Commission and other international organizations dealing with marine environmental programmes and projects, in particular, with the operational activities under marine components of the WWW of WMO,

Noting the great value of operational oceanographic information from various regions of the World's Ocean, particularly in the interest of supporting the World Climate Programme and related activities,

Recognizing the need for further improvement and expansion of the IGOSS Observing System (IOS),

Stressing also that IGOSS, being a permanent operational programme can make a substantial contribution to the Global Ocean Climate Data Base required for ocean climate studies,

Recognizing the need for time-series data on a regular and continuing basis,

Considering the desirability of exchanging internationally sea surface temperature measurements from satellites,

Requests the Joint IOC/WMO Working Committee for IGOSS, in consultation with relevant bodies of IOC and WMO:

(1) (i) to consider measures for IGOSS to contribute effectively to the ocean climate studies, paying particular attention to the establishment of time-series observations;

(ii) to study the problem of and propose arrangements for international exchange of sea surface temperature measurements from satellites;

(2) (iii) to consider the possibility of establishing an international observational network of stations on the basis of the use of drifting automated buoys, as one of the main components of IGOSS;

Noting the request of the Interim Management Committee for COST Project 43 for IOC support with a view to ensuring that the objectives of COST Project 43 are realized in an optimum manner,

Instructs the Secretary to determine actions necessary to support the objectives of COST Project 43, and to report on the need for actions by the Commission to the Executive Council;

Urges Member States to participate actively in all or parts of the basic elements and programmes of IGOSS;

Requests the Secretary to arrange jointly with WMO Secretariat the preparation, on a regular basis, of a status report on the implementation of IGOSS for submission to the IOC Assembly and the Executive Council.

Implications for the IOC budget:

(1) included in resolution XI-3
(2) $18,000 (1981-1983)

Resolution XI-20

INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE

The Intergovernmental Oceanographic Commission,

Recalling its resolutions IX-28, IX-30 and IX-31,

Noting that the ninth session of the Working Committee on International Oceanographic Data Exchange reviewed progress in the international oceanographic data exchange since 1975 and formulated proposals for its further development which were endorsed by the eleventh session of the IOC Executive Council in its resolutions EC-XI.13 and 14,

Noting with satisfaction the continued growth of data and document submission to the WDC's-Oceanography (cf. document IOC/EC-X/14); the development of the IOC General Format for exchange of oceanographic data; development of the Responsible National Oceanographic Data Centres (RNODCs) scheme; preparation of the plan for oceanographic data management during the FGGE Operational Year (FOY),

Considering the recommendations of the ninth session of the WC/IODE,

Noting also that the SAB-IV recommended to the EC to assign a high priority status to all IODE activities (cf. document IOC/INF-405),

Expressing further its appreciation of the effective co-operation with WMO on oceanographic data management arrangements for FOY, IGOSS and other aspects of IODE activities of mutual interest for meteorological and oceanographic studies,

Noting with concern that in certain international programmes dealing with marine pollution monitoring, in particular in programmes co-ordinated by UNEP, there are tendencies which might lead to the establishment of independent systems of data collection and exchange,

Drawing attention to existing shortcomings in the implementation of the Declared National Programmes (DNPs),

Calls upon Member States:

- to submit to the Secretariat, on a more regular basis, information on DNPs/NOPs;
- to submit to WDCs (Oceanography), completed ROSCOP and IG/GCI forms;
- to submit data obtained during international programmes or under DNPs to the WDCs (Oceanography) and respective RNODC (IGOSS: BATHY/TESAC, MAPMOPP, FOY, Waves), in accordance with provisions of the Manual on International Oceanographic Data Exchange (IOC Manuals and Guides No. 9);

- to utilize the IOC General Format for exchange of oceanographic data (GF-3) adopted by WC/IODE-IX;

- to encourage NODCs to assume the role of additional RNODCs to assist the WDCs (Oceanography) by providing various types of readily available services for international programmes and projects, co-ordinated by IOC, or in co-operation with other international organizations (SOC-BIOMASS, El Niño, CINCWIO, Climate, etc.);

Invites the Executive Heads of the ICSPRO agencies to bring to the attention of their respective bodies the internationally agreed principles and procedures for international exchange of oceanographic data as outlined in the Manual on IODE, and to ensure maximum possible availability of all data resulting from marine environmental research and monitoring programmes through the World Data Centre system;

Instructs the Secretary, in consultation with the Chairman WC/IODE and Directors of WDCs (Oceanography), to arrange preparation on a regular basis of progress reports on IODE for submission to the IOC Assembly;

Noting with satisfaction the outcome of the Joint IOC/WMO IPM on Marine Environmental Data Management held in September 1979,

Further invites WMO to call on its subsidiary bodies, as appropriate, in order to ensure collaboration with the IOC and the IOC Working Committee on International Oceanographic Data Exchange on data management, formatting and exchange procedures for oceanographic and remote-sensed data which may be needed inter alia for the World Climate Programme and air-sea interaction studies.

Implications for the IOC budget: None

Resolution XI-21

AQUATIC SCIENCES AND FISHERIES INFORMATION SYSTEM (ASFIS)

The Intergovernmental Oceanographic Commission,

Recalling its resolution IX-31,

Noting recommendation IODE-IX.7 of the ninth session of the Working Committee on International Oceanographic Data Exchange and resolution EC-XI.14 of the eleventh session of its Executive Council,

Noting with satisfaction the progress in the accelerated development of ASFIS by FAO (the co-ordinating agency), the UN(OETO) and the IOC,

Realizing that the development of ASFIS has now reached a stage where the major information requirements of the IOC and other national and international marine programmes can be met,

Recognizing that information support services are of a continuing nature and are expected to meet varying research, management and policy requirements and that, therefore, they necessarily need to service all programme activities in providing the appropriate information support,

Further recognizing that the primary responsibility for major operational ASFIS functions lies with FAO,

Decides that the Commission should continue to play its catalytic role as an advisory and co-ordinating body and assist FAO in some operational functions by participating in the build-up and maintenance of the information data base, and that in carrying out these functions, the IOC should:

- maintain close liaison with the General Information Programme (PGI) policy of Unesco, to ensure that future developments of the system can meet the information requirements of Member States;

- concentrate on the improvement of the existing information infrastructure in the developing countries, in order to enable them to use the current operational information systems better and more effectively;

- participate actively in providing advice and assistance in developing marine information services that would meet the requirements of its Member States and particularly those of the developing countries;

- consider the development of supplementary services for speedy transmission of information which requires rapid dissemination to Member States, especially that related to plans for future research of international significance as well as the results of completed research;

- strive to support training and technical assistance with respect to information and technology transfer in the developing countries;

- undertake, with the assistance of other United Nations bodies, the initiative of solving the difficult problem of document delivery (hard copy/microfiche) especially to the developing nations;

Calls on Member States:

- to encourage the establishment of national ASFIS centres to assist the Secretariat in carrying out its function in both the identification and allocation of activities to be carried out by such centres and the provision of the services required (this task being at present undertaken by the sponsoring United Nations organizations);

- to provide support to the IOC Secretariat in terms of funds and staff, in order to carry out the functions listed above;

Expresses its appreciation to the Government of Colombia for extending an invitation to host the ASFIS Training Seminar/Workshop in the Caribbean region.

Implications for the IOC budget: None

Resolution XI-22

MARINE ENVIRONMENTAL DATA INFORMATION REFERRAL SYSTEM (MEDI)

The Intergovernmental Oceanographic Commission,

Recalling its resolution IX-30,

Noting recommendation IODE-IX. 8 of the ninth session of the Working Committee on International Oceanographic Data Exchange,

Noting with satisfaction the following MEDI Referral System achievements:

- MEDI established as an operational computer-based system,

- the publication of the first edition of the MEDI Catalogue,

- the publication of the revised MEDI Input Registration Form,

- the publication of the MEDI Brochure,

- the designation by UNEP of MEDI as the official sectoral focal point for marine science in the INFOTERRA network,

Expressing its appreciation to UNEP for its financial support of MEDI development,

Emphasizing that MEDI is a multi-agency, interdisciplinary system, which requires close contacts among and between international organizations as well as various IOC programmes,

Recognizing that for MEDI's successful performance of operational functions by the Secretariat, additional staff and financial support are required,

Urges Member States:

- to assist the IOC MEDI Co-ordination Centre by providing for additional support to the increasing operational activities of the Centre or to take on much of the responsibility for processing and retrieving data for the MEDI Referral System;

- to ensure that data archiving centres and activities submit to the MEDI Co-ordination Centre completed MEDI input registration forms which describe data files, inventories, etc., obtained during international programmes of the IOC;

- to call upon their national co-ordinators for IODE, acting in concert with the appropriate national contacts for relevant United Nations Specialized Agencies to promote the submission of MEDI registration forms from national organizations storing marine data;

- to encourage liaison and co-ordination in the use and future developments of MEDI among their national agencies involved in environmental research and participating in co-operative international programmes of the IOC and ICSPRO agencies;

Invites the Executive Heads of the ICSPRO agencies participating in MEDI to make arrangements, as necessary, in order to provide input to MEDI from MEDI national, regional and international centres co-ordinated by the agencies;

Instructs the Secretary to present participation in MEDI as a subject for discussion at the next meeting of ICSPRO.

Implications for the IOC budget: None

Resolution XI-23

ASSOCIATE DIRECTOR
INTERNATIONAL TSUNAMI INFORMATION CENTER (ITIC)

The Intergovernmental Oceanographic Commission,

Recalling that the position of Associate Director of the International Tsunami Information Center (ITIC) was established in 1974 by resolution EC-IV.6, to be filled from a Member State of the International Co-ordination Group for the Tsunami Warning System in the Pacific (ITSU) other than the United States,

Bearing in mind that the salary and cost of living allowance for the incumbent has to be covered by his government,

Noting that none of the Member States have submitted a candidate in reply to Circular Letter No. 748 dated 5 March 1979, and that the former Associate Director left ITIC at the end of June 1979 without replacement,

Urges Member States, because of the importance of the post for the proper functioning of the Tsunami Warning System in the Pacific and servicing of Member States, to reconsider this matter urgently and forward the names of suitable candidates for this post at their earliest convenience;

Invites Member States, members of ITSU, to consider at the forthcoming seventh session of ICG/ITSU, ways and means of addressing the continuing problem of selecting and funding appropriate incumbents to this post, and to report their findings to the Executive Council at its thirteenth session.

Implications for the IOC budget: None

Resolution XI-24

STRUCTURE FOR THE TEMA ACTIVITIES OF THE COMMISSION

The Intergovernmental Oceanographic Commission,

Being of the firm conviction that Training, Education and Mutual Assistance in the marine sciences (TEMA) is one of the most important activities of the Commission,

Believing that it is important for TEMA functions within the Commission to be constituted in such a way as to ensure effective training, education and mutual assistance,

Having received the report prepared by the ad hoc Task Team to consider the structure for the TEMA activities of the Commission which met in Paris on 15 October 1979,

Instructs the Secretary to prepare a working document along the lines suggested by the above ad hoc Task Team, taking into account the discussions which took place during the eleventh session of the Assembly on this matter (reference: document SC/MD/65, item B.4.3.2);

Requests the Working Committee for TEMA, at its third session, to consider this working document and examine in depth the TEMA structure within the Commission and to make appropriate recommendations;

Authorizes the Executive Council to take all necessary action on the recommendations received from the third session of the Working Committee for TEMA.

Implications for the IOC budget: None

Resolution XI-25

GUIDELINES FOR THE STRUCTURE AND RESPONSIBILITIES OF THE SUBSIDIARY BODIES OF THE COMMISSION

The Intergovernmental Oceanographic Commission,

Recalling that by resolution IX-25, the Assembly recognized the need to establish clearly the structure and responsibilities of the subsidiary bodies of the Commission,

Recalling further that at its tenth session, the Assembly approved the Provisional Guidelines for the Structure and Responsibilities of the Commission (resolution X-28),

Approves the revised "Guidelines for the Structure and Responsibilities of the Subsidiary Bodies of the Commission" (IOC Manual Part I, Section 4);*

Instructs the Secretary to revise the terms of reference of the IOC Subsidiary Bodies to bring them into conformity with these revised Guidelines;

Also instructs the Secretary to incorporate these revised Guidelines in the IOC Manual and to ensure that they are followed as closely as possible in the future.

Resolutions IX-25 and X-28 are cancelled.

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* Document IOC-XI/C.IV/SR.

Implications for the IOC budget: None

Resolution XI-26

POSSIBLE SOURCES OF FUNDING FOR THE IOC

The Intergovernmental Oceanographic Commission,

Taking into account the discussions and recommendations of the Working Group on the Future Role and Functions of the Commission at its second session, on possible sources of funding for the IOC,

Noting also the request of the Executive Council at its eleventh session for further supplementary information in support of certain of the recommendations of the WG/FUROF,

Bearing in mind the continuing need for close consultation internally in Member States between delegations to the IOC Assembly and the Unesco General Conference, and the desirability that these delegations reach a general understanding of the need for an increased allocation of Unesco resources to Objective 7.4, Ocean and Coastal Marine Systems,

Endorses: (A) the principle of identifying the need for additional resources and submitting, as appropriate and as soon as possible, such requirements to the Unesco General Conference for inclusion in its Programme and Budget for 1981-1983 (document 21 C/5) and thereafter;

(B) efforts by the Chairman, Vice-Chairman and Member States to solicit increased voluntary contributions from Member States and other sources for:

(i) the IOC Trust Fund;
(ii) special programme funding;
(iii) regional association funding;

Bearing in mind that such contributions could be of a direct nature, such as a commitment in kind of services, gifts or facilities,

Instructs the Secretary to identify those activities of the Commission that could benefit from such support and report his actions thereon to the Assembly at its twelfth session;

Further instructs the Secretary to prepare a guideline for possible funding arrangements, as information for donor States and other funding sources;

Also endorses: (C) the principle that the IOC should determine and submit budget and other resource requirements relevant to projects or programmes of common interest to the ICSPRO agencies or any other United Nations body and inform the relevant body of the work carried out and expenditures incurred;

Instructs the Secretary, in consultation with the appropriate body, to identify these needs and submit the corresponding programme requirements to the Executive Council for endorsement.

Implications for the IOC budget: None

Resolution XI-27

SELECTION OF IOC STAFF OFFICERS

The Intergovernmental Oceanographic Commission,

Recognizing the importance of ensuring appropriate geographical distribution when recruiting staff officers for posts in the secretariats of bodies forming part of the United Nations system,

Drawing attention to the unique needs of Member States with interest in ocean programmes,

Noting that the present geographical guidelines used by Unesco do not correspond adequately to the programme priorities of the IOC,

Invites the Director-General of Unesco, when making appointments of staff to the IOC Secretariat, to take into account the special needs of the Commission, with respect to geographical representation arising from the ocean basis of its programmes;

Instructs the Secretary to continue to inform the Assembly and the Executive Council of appointments to the IOC Secretariat.

Implications for the IOC budget: None

Resolution XI-28

MAJOR DIRECTIONS FOR THE COMMISSION'S FUTURE PROGRAMME

The Intergovernmental Oceanographic Commission,

Accepting that the Commission's future role and functions should be identified in such a way that it can concentrate its efforts on:

- marine science and ocean services activities for which world-wide co-ordination at the intergovernmental level is essential,
- regional problem-oriented marine science activities where there is no regional body to deal with such undertakings, and
- promoting training, education and mutual assistance in the marine sciences among its Member States, particularly in the developing countries,

Having received with appreciation the report initiated by the Working Group on the Future Role and Functions of the Commission on the Purpose and Functions of the Commission and Directions for its Future Programme (reference: document IOC/EC-XII/7) and also the report of the Task Team on the Identification of Programmes of greatest benefit to developing IOC Member States (reference: document IOC/WG-FUROF-II/16 Add.),

Approves this report (document IOC/EC-XII/7) as the general framework for the Commission's future programme, with the exception of the first paragraph under section 2.4(ii) and section 4.4 which should be considered further in the light of the results of the Third United Nations Conference on the Law of the Sea;

Invites the agencies members of the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO) to support the Commission in the execution of the relevant parts of any programmes developed under the above general framework;

Decides that the Assembly and Executive Council, with the assistance of the Scientific Review Board and the Commission's advisory bodies, should keep this document under continuing review so as to be able to identify the major areas of interest for the work of the Commission, taking into account particularly the needs of the developing countries and the results of the Third United Nations Conference on the Law of the Sea.

Implications for the IOC budget: None

Resolution XI-29

THE IOC SCIENTIFIC REVIEW BOARD

The Intergovernmental Oceanographic Commission,

Recalling resolution IX-19 in which the Commission decided to set up for a period of two years a Scientific Advisory Board,

Recalling further the decision by the Assembly at its tenth session (Unesco, Paris, 27 October-10 November 1977) to continue the Scientific Advisory Board until the eleventh session of the Assembly (document SC/MD/60, item 13.1),

Noting with satisfaction the reports by the Scientific Advisory Board during the past four years and the reviews made of the Commission's major programmes,

Recognizing the need for the Commission to undertake a continuing review and long-term planning for the Commission's overall science programmes in relation to the interests, needs and available resources of Member States,

Considering the difficulties in reconciling the responsibilities of the Scientific Advisory Board with those of the advisory bodies to the Commission,

(1) Decides to establish an IOC Scientific Review Board (SRB), with the terms of reference given in the attached annex, to replace the Scientific Advisory Board.

Implications for the IOC budget:

(1) $24,000 (1980)
$25,000 (1981-1983)

Annex to resolution XI-29

TERMS OF REFERENCE OF THE IOC SCIENTIFIC REVIEW BOARD

I. Tasks and functions

The Scientific Review Board shall have the following tasks and functions:

(a) to undertake a continuing review and evaluation of the ongoing research programmes of IOC, taking into account the interests, needs and available resources of Member States;

(b) report on the strengths and weaknesses of IOC scientific programmes and related activities in order to avoid duplication of effort and gaps in projects;

(c) to make recommendations regarding the assignment of priorities and future developments regarding the Commission's scientific programmes;

(d) to strengthen the relations with the advisory bodies in planning the Commission's scientific programmes.

II. Membership

(a) all Member States shall be invited to nominate senior scientists having a broad knowledge of the ocean sciences and shall include with each nomination the curriculum vitae of the nominee;

(b) Board members (up to a maximum of 14) shall be selected by the Executive Council from the list of candidates nominated by Member States, taking into account the principle of geographical distribution and the need for broad scientific disciplinary representation;

(c) each of the Commission's advisory bodies shall be invited to designate one member;

(d) the Board shall consist of no more than 14 members designated by Member States, the Vice-Chairman for Ocean Science and the three members from the advisory bodies (SCOR, ACMRR, ECOR);

(e) members will normally be appointed for a finite term of office (not to exceed four years) but are eligible for re-election - terms of office will be staggered, half the members being elected every second year;

(f) as members are chosen primarily for their scientific expertise, Member States will not have the right to select substitutes in the case of non-availability of an elected member, at regular meetings of the Board - however, observers from the Member States of the absent members may attend;

(g) the Board shall elect its own Chairman and Vice-Chairman.

III. Procedure of work

(a) the Board shall meet no more than twice between session of the Assembly;

(b) the Board shall prepare a report which will be submitted to the Secretary for distribution to all Member States, for their consideration three months in advance of the sessions of the Assembly;

(c) the costs of the Board shall be borne by the Commission, but every effort should be made by each Board member to defray the costs of his participation in the work of the Board.

Resolution XI-30

CREATION OF A REGIONAL CENTRE FOR CALIBRATION AND STANDARDIZATION OF OCEANOGRAPHIC METHODS AND TECHNIQUES

The Intergovernmental Oceanographic Commission,

Recognizing the increasing development of its global programmes, such as IGOSS, GIPME, IODE and TEMA,

Noting that the South American countries wish to strengthen their own oceanographic infrastructures so as to be able to participate actively in the above-mentioned programmes,

Considering it necessary to have an infrastructure that covers the various aspects of the co-ordination of intercalibration exercises, the standardization of oceanographic methods and techniques, as well as the training of personnel for these programmes, which provides the researchers of these countries with a centre that would allow them to carry out major research programmes,

Considering, on the other hand, that the creation of such centres was contemplated in paragraph 92 of the report of the first session of the Group of Experts on Long-Term Scientific Policy and Planning (document GELTSPAP-I/17),

Bearing in mind that the Government of Uruguay has offered to be the host country for a Regional Centre for Calibration and Standardization of Oceanographic Methods and Techniques, and that the South American countries support this offer,

Welcomes the creation of the Centre described above;

Instructs the Secretary to investigate, with the Division of Marine Sciences of Unesco, the possibility of sending an expert to assist the Government of Uruguay to formulate the requirements for the establishment of such a centre.

Implications for the IOC budget: None

Resolution XI-31

IOC AND UNEP CO-OPERATION ON REGIONAL SEAS PROGRAMMES

The Intergovernmental Oceanographic Commission,

Recognizing that improvement is needed in co-operation on implementation of programmes of joint interest to IOC and UNEP in order to serve better the interests of Member States,

Noting the decisions taken by the Assembly with a view to improving activities in research and monitoring marine pollution,

Recommends that further negotiations be initiated to ensure that IOC and UNEP complement each other and that, as far as possible and without affecting the efficiency of existing arrangements, UNEP consider the possibility of using IOC, its subsidiary bodies and regional mechanisms for planning and implementing appropriate marine science components of UNEP Regional Seas Programmes;

Noting further the present level of co-operation between IOC and UNEP in the Caribbean region, in particular the international Workshop on Marine Pollution jointly sponsored by IOC, FAO, and UNEP (Trinidad, 1976), the Directory of Marine Research Institutions jointly prepared by IOC and UNEP, and the preparations of an action plan for the Wider Caribbean region as part of UNEP's Regional Seas Programmes,

Invites the Executive Director of UNEP to:

(1) consider IOCARIBE as the mechanism for co-ordinating implementation of relevant parts of the marine science programme expected to be adopted as part of the Regional Seas Action Plan for the Caribbean Environment Programme; and

(2) identify the extent of financial support available for the marine science programme in the Caribbean.

Implications for the IOC budget: None

Resolution XI-32

PERMANENT SERVICE FOR MEAN SEA LEVEL (PSMSL)

The Intergovernmental Oceanographic Commission,

Recognizing the potential importance of the Permanent Service for Mean Sea Level in the future programme related to climatic changes and the ocean,

Recognizing further that the present contributions from the Federation of Astronomical and Geophysical Services (FAGS) of approximately $5,000 annually, from the United Kingdom Government of approximately $11,500 and the planned contribution from the IOC of $12,000 for the period 1981-1982 will be inadequate to meet the increased responsibilities of PSMSL,

(1) Instructs the Secretary to increase the IOC contribution to $20,000 during the 1981-1982 biennium if additional funds become available to the Commission from the Unesco Regular Programme.

Implications for the IOC budget:

(1) included in resolution XI-3

Resolution XI-33

PROGRAMME AND BUDGET FOR THE BIENNIUM 1981-1982

The Intergovernmental Oceanographic Commission,

Having considered the Draft Programme and Budget for the 1981-1982 biennium, prepared by the Planning Team formed by the Chairman in accordance with IOC resolution X-27, and endorsed in principle by the Executive Council at its eleventh session,

Taking into account the budgetary impacts of decisions taken at the eleventh session of the Assembly,

Recognizing that funds from the Unesco Regular Programme are inadequate to carry out fully the Commission's programmes and that additional voluntary funding support is required including financial assistance from Member States and other United Nations bodies,

Approves the Draft Programme and Budget for 1981-1982 as contained in the Annex based on analyses and amendment of document IOC/BUPLAN-I/2 rev. 4; and

Instructs the Secretary to take the Approved Programme and Budget for 1981-1982 into account when the Unesco draft document 21 C/5 (1981-1983) is being prepared;

Noting that the Officers and Secretary must shortly begin development of the budget for the following biennium 1984-1985 and the Medium Term Plan for 1984-1989, as defined by the Director-General of Unesco,

Requests the Executive Council to begin this work at its next session;

Recalling the comments by the Director-General of Unesco in his address to the opening session of ICC-XI indicating that consideration will be given to providing the Science Sector with double the average growth for the organization as a whole,

Invites the Director-General of Unesco to consider increasing substantially the budget for IOC to accommodate funding for TEMA needs related to major programmes of the Commission and for support of the climate initiative and the ocean science related to living resources.

Implications for the IOC budget:

$1,277,000 (1981-1983)

Note: Implications shown under other resolutions of the eleventh session of the IOC Assembly are included in the above sum.

Annex to resolution XI-33

SUMMARY OF OPERATIONAL FUNDS REQUIRED IN 1981-1982

Project	Unesco Regular Programme funds US $	Member States contributions and Trust Fund US $	Support from United Nations funding agencies (UNDP, UNEP) US $	Cash contributions of other ICSPRO agencies to IOC US $	Total US $	Counterpart contributions of other ICSPRO agencies US $
1. Governing and advisory bodies Miscellaneous	262,000 (20.5%)*	-	-	-	262,000	-
2. Ocean science activities	424,000 (33%)*	1,440,000	60,000	-	1,924,000	-
2.1 Ocean and climate	57,000	600,000	-	-	657,000	-
2.2 Morph. Chart.	40,000	400,000	-	-	440,000	-
2.3 GIPME	81,000	-	60,000 (UNEP)	-	141,000	-
2.4 SOC	33,000	-	-	-	33,000	-
2.5 IOCARIBE	47,000	200,000	-	-	247,000	-
2.6 WESTPAC	50,000	200,000	-	-	250,000	-
2.7 EL NIÑO	40,000	-	(UNDP project requested)	-	(40,000 (+ UNDP	-
2.8 CINCWIO	20,000	40,000	-	-	60,000	-
2.9 Mediterranean	41,000	-	-	-	41,000	-
2.10 Liv. Res.	15,000	-	-	-	15,000	-

(continued)

Project	Unesco Regular Programme funds US $	Member States contributions and Trust Fund US $	Support from United Nations funding agencies (UNDP, UNEP) US $	Cash contributions of other ICSPRO agencies to IOC US $	Total US $	Counterpart contributions of other ICSPRO agencies US $
3. Ocean service activities	237,000 (18.5%)*	126,000	-	-	363,000	252,000
3.1 IGOSS	92,000	36,000	-	-	128,000	(WMO) 110,000
3.2 IODE	100,000	57,000	-	-	157,000	(UN) 10,000 (FAO) 132,000
3.3 ITSU	45,000	33,000	-	-	78,000	
4. TEMA	354,000 (28%)*	401,000	-	-	755,000	-
TOTAL	1,277,000** (100%)	1,967,000	60,000 (+UNDP)	-	3,304,000	+ 252,000

* The relevant percentages for the 1979-1980 budget (20 C/5) are:

(1) 24.00%
(2) 36.50%
(3) 22.50%
(4) 17.00%

** - This is 13.5% over the original 1979-1980 allocation (20 C/5: US $1,125,400).

- The total of US $1,277,000 can also be split in the following way:

Conference services	25%
Experts/delegates/officers travel plus per diem	28%
Staff travel plus per diem	12%
Contracts with other bodies or consultants	12%
Printing	4%
Grants for training	15%
Secretariat equipment (Xerox, computer ...)	4%

Resolution XI-34

IOC SPONSORSHIP OF THE COMMITTEE ON CLIMATIC CHANGES AND THE OCEAN (CCCO)

The Intergovernmental Oceanographic Commission,

Having decided that the climate programmes will be a major scientific initiative of the Commission's future role and functions (cf. resolution XI-3),

Recognizing that SCOR has established the Committee on Climatic Changes and the Ocean (CCCO) and has invited the Commission to co-sponsor the CCCO,

Decides to co-sponsor and support financially with SCOR the Committee on Climatic Changes and the Ocean (CCCO);

Instructs the Secretary to inform SCOR of this decision.

Implications for the IOC budget:

included in resolution XI-3

Resolution XI-35

REVIEW OF THE MARINE SCIENCE PROGRAMMES OF UNESCO

The Intergovernmental Oceanographic Commission,

Bearing in mind Article 2 (h) of the Statutes of the Commission,

Notes with appreciation that the Director-General intends to propose a doubled rate of increase to Unesco's science activities, including oceanography, in the forthcoming biennium;

Having received with appreciation the report of the Task Team* established by the Executive Council at its eleventh session to draft procedures for preparing recommendations and technical guidance to Unesco as to the formulation and execution of its marine sciences programmes,

Having also received with thanks the most recent report on the activities of the Division of Marine Sciences of Unesco (document MARINF/26),

Recognizing the close complementary nature of the programmes of the IOC and the Division of Marine Sciences (OCE) particularly those parts related to TEMA,

Appreciating the close co-operation with which the IOC Secretariat and the Division (OCE) carry out their work,

Having examined briefly the draft programme of the Division (OCE) for 1981-1983,

A.

Endorses the orientation of the programme of the Division (OCE) with its emphasis on the development of human resources in the marine sciences and national marine science infrastructure;

Requests the Division (OCE) to provide the IOC Working Committee for TEMA, at its third session in Buenos Aires, 26-30 April 1980, with a review of the Division's experience in human resources development and the relationship of this to TEMA;

Requests further that the Division (OCE) provide regularly to the Assembly, the Executive Council and the major subsidiary bodies of the Commission, an accounting of its existing and planned marine sciences activities, including the type and extent of such activities, and identify the relationships of the Division's activities to the IOC programmes;

B.

Requests the subsidiary bodies to consider specific ways in which the Division (OCE) could assist or complement their particular programmes, with TEMA co-ordinators of these subsidiary bodies playing a major role in this process and to prepare proposals for such assistance for consideration by the Executive Council;

Calls upon the Executive Council to assign priorities to these proposals and to refer them to Unesco for consideration in the execution of the Division's (OCE's) marine sciences programme;

Invites the Division (OCE) to include in its regular reports to the Executive Council its response to the suggestions which the Executive Council has made to Unesco based upon the above consideration by the subsidiary bodies, indicating what action, if any, it had been possible to implement, after approval by the Unesco General Conference;

Decides to include on the agenda of each Assembly a review of the Unesco marine sciences programme and to transmit regularly to the Director-General of Unesco, the Commission's comments on the draft programme and budget of the Division (OCE), so that these comments can be considered during the finalization of the Unesco programme; and

Instructs the Secretary to maintain close working liaison with the Division (OCE) to ensure implementation of the procedures given above and to report on these arrangements to the Executive Council at its thirteenth session.

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* Document SC/MD/65 Annex VI.

Implications for the IOC budget: None

Resolution XI-36

IOC TRUST FUND - CONTRIBUTION FROM THE GOVERNMENT OF THE FEDERAL REPUBLIC OF GERMANY

The Intergovernmental Oceanographic Commission,

Pursuant to Rule 55 of the Rules of Procedure of the Commission which states that the Assembly or the Executive Council may accept or reject any offer of a voluntary contribution for a trust fund, the expenditure of which has been restricted or designated for specific purposes by the contributor,

Decides to accept with appreciation the offer announced by the Federal Republic of Germany to contribute in 1980 to the IOC Trust Fund an amount of 100,000 German marks, noting that it will mainly be earmarked for financing an advanced regional training course in oceanography relating to the approved programmes of the Commission, to be organized by Unesco in a developing country, in collaboration with the governments of the host country and of the Federal Republic of Germany, the remaining part of this contribution being foreseen for other TEMA activities of the Commission;

Authorizes the Secretary, pursuant to Rule of Procedure No. 55, to expend this contribution when received for the specific purposes designated by the contributor; and

Instructs the Secretary to report on the uses which have been made of the funds to subsequent meetings of the Exeuctive Council or Assembly.

Implications for the IOC budget: None

Resolution XI-37

SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

The Intergovernmental Oceanographic Commission,

Noting that the new ocean regime is expected to contribute to the implementation of a new international economic order through increased opportunities for universal economic and social development,

Recognizing that such opportunities, as well as the fulfilment of related responsibilities in management and protection of marine resources and environment depend on, among other factors, adequate support for the marine sciences, and appropriate transfer of technology,

Being aware of the fact that many Member States may need and request technical assistance in the field of the marine sciences, particularly developing countries which, despite their national efforts, find themselves in need of much more development in the marine sciences, the related infrastructure and human resources,

Noting further that this limitation is also seriously hampering their full participation in marine science programmes and other forms of co-operation in international ocean affairs,

Recalling that the United Nations Conference on Science and Technology for Development (UNCSTD) decided to create an Interim Fund for the period 1980-1981 of not less than $250,000,000,

Requests the Member States of IOC to ask their delegations to the United Nations General Assembly and the new Intergovernmental Committee on Science and Technology for Development to give high priority to marine science and technology in the allocation of such funds and particularly to give favourable consideration to the funding of projects aimed at strengthening national capabilities in the field of marine sciences and related infrastructures, particularly in developing countries, as a basis for the rational use of the oceans and their resources, and at facilitating their effective participation in regional and global co-operative efforts; and

Requests the Chairman and Secretary of IOC to undertake action to that end and to report to the thirteenth session of the Executive Council.

Implications for the IOC budget: None

Resolution XI-38

JOINT OCEANOGRAPHIC ASSEMBLY

The Intergovernmental Oceanographic Commission,

Recalling resolution VII-2,

Recalling also the support and encouragement given to the scientific bodies concerned, including the Commission's advisory bodies, for the Joint Oceanographic Assembly held in Edinburgh, 1976, and the success of that Assembly,

Noting that SCOR intends to accept an invitation to hold the next JOA in Halifax, Canada, in 1982,

Requests the appropriate scientific bodies to proceed with the organization of the programme for a Joint Oceanographic Assembly;

Instructs the Secretary to co-operate with these bodies in the preparation for the Assembly;

(1) Approves the expenditure of $30,000 from the 1981-1983 budget in support of the Assembly;

Invites Member States and non-Member States, Unesco and the other organizations of the United Nations system, members of ICSPRO, as well as other interested organizations and institutions, to assist in the preparations for the Assembly, including the provision of adequate budgetary support;

Instructs the Secretary to consult with the ICSPRO agencies with a view to forming a Logistics Committee composed of representatives of those agencies able and willing to provide budgetary and other support for the JOA, 1982;

Invites the ICSPRO agencies to nominate representatives to serve on the Logistics Committee, so as to ensure proper co-ordination of their contributions and other support.

Implications for the IOC budget:

(1) $30,000 (1981-1983)

Resolution XI-39

EXPRESSION OF GRATITUDE OF IOC MEMBER STATES
TO THE PRESENT SECRETARY IOC

The Intergovernmental Oceanographic Commission,

Noting with deep regret the decision of Mr. Desmond P. D. Scott to resign from the post of Secretary to the Commission,

Wishing to emphasize their appreciation of his exceptional contribution to the Commission over the past seven years,

Considering the vital role he has played in helping to make the Commission a widely respected instrument for furthering international co-operation in ocean sciences and services,

Recognizing his personal concern for the interests and welfare of all the Member States of the Commission and in particular the developing countries,

Appreciating his skills in reconciling the points of view of the Member States of the Commission and thus promoting their concerted action,

Grateful for his tireless commitment to the responsibilities of his office, and

Mindful of his many personal kindnesses to delegates throughout the years,

Wishes to put on record its deepest commendation of his outstanding and meritorious services to the Commission, and to express its warmest thanks for his achievements.

Implications for the IOC budget: None

ANNEX III

ADDRESSES

A. OPENING ADDRESS BY DR. ABDUL-RASSAK KADDOURA
ASSISTANT DIRECTOR-GENERAL FOR SCIENCE

25 October 1979

On behalf of the Director-General of Unesco, I am pleased to welcome you to Unesco House for the eleventh session of your Assembly. In fact, the Director-General will be here tomorrow and will address you at the start of your day's work. He has asked me to apologize to you for his inability to be present today but he is out of France on mission and does not return until this evening.

This mission will also preclude his attendance at the reception tonight and I will be deputizing for him thereat. I trust you have all received invitations, including your wives and husbands present here with you in Paris.

In view of the fact that the Director-General will be speaking to you himself tomorrow, I intend to keep my opening statement short, so that you will not be treated to two expositions on the same theme.

In my four years as Assistant Director-General for Science of Unesco, I have come to respect and admire the Intergovernmental Oceanographic Commission and its tenacity of purpose. This is the only semi-autonomous body with its Secretariat under my direct supervision. It took me a certain amount of time to realize what a key body the IOC is in the United Nations family and I sincerely believe that we in Unesco should recognize the privilege we have been presented with in acting as the parent organization for the Commission.

I know the Secretary has informed you on more than one occasion of the very considerable amount of support you receive from the Unesco administration in the form of such services as interpretation, translations, document reproduction, publications, accounting, recruitment of staff, conference room services, and so on, which only goes to emphasize the number of administrative staff that are needed to provide support to the operational staff members in the IOC Secretariat who carry out the day-to-day work of the Commission.

To speak succinctly, there should be no doubt in your mind that the administrative support needed to maintain your programme is out of all proportion to the number of operational staff members shown on the books as members of the IOC Secretariat. At this juncture, I would like to express my appreciation to the other ICSPRO agencies which have, over the years, provided staff members for the IOC Secretariat. This concept of a multi-agency Secretariat is, in my view, one of the key reasons for the success of the Commission and its unique position as a co-ordinating body for activities which are the legitimate concern of more than one agency.

Next, let me turn to the status of the Commission as a specialist technical body within the United Nations family.

In the late 1950s, Unesco was requested by its Member States to act as the parent body for this new unit then being contemplated. There were a number of small regional bodies already in existence, indeed; the most prestigious of these - the International

Council for the Exploration of the Sea - had already then been in existence for over 50 years. But far-sighted people were then beginning to realize the importance of the oceans to mankind as a whole over and above their traditional role as providing the main communication and trade links between the various land masses. It was becoming increasingly clear that there was an urgent need to increase the efforts that could be given by all nations to the investigation of the physical and chemical properties of the oceans, the geology and geophysics of the seabed and the sub-soil, the ocean processes - currents, sea level and so on. And what was more, this could not be done by a few nations, we were all in it together.

The Scientific Committee on Oceanic Research, itself then a relatively new non-governmental body in the ICSU family, had started planning the International Indian Ocean Expedition under the theme or title "Assault on the largest unknown" and the management of this project was handed over to the Commission as soon as it had been established - incidentally, we have just commissioned a book on the IIOE which will hopefully be published next year.

So IOC was founded and at its first session was given three main tasks:

to manage the IIOE - and, of course, subsequent co-operative investigations were envisaged;

to build up a system of international oceanographic data exchange based on the World Data Centres for Oceanography which had been established a few years earlier for the International Geophysical Year; and

to develop educational and training facilities for all Member States, as and when they felt able to turn their eyes to the sea at their doorsteps and look on it as something more than a body of water to swim in or sail on. In those early days, there was a project for a Training Vessel to be run by Unesco but this was dropped in favour of individual training in oceanographic research ships of other Member States.

The new venture was enthusiastically supported by the Specialized Agencies, in particular FAO, and the statutes were worded in such a way that any member of the United Nations or one of the Specialized Agencies could become a member of the Commission - this allowed quite separate membership from that of Unesco Member States interested in the oceans; and also a Secretariat provided by a number of the Specialized Agencies, of which Unesco was only one.

So the Commission was envisaged from the start as a body having functional autonomy. It was placed in Unesco because of two of the basic functions on which the Organization was founded - education and scientific research - but at the same time it was given close links with the other Specialized Agencies having more applied responsibilities in the oceans.

I need not go further, Mr. Chairman, except to say that we in Unesco, and I am sure the Director-General will tell you this himself tomorrow, are pleased to provide the Commission with all the support we can and also wish to lend our encouragement to your work on the Future Role and Functions of the Commission which is of such vital importance to the member countries and the developing countries in particular.

Thank you, Mr. Chairman.

B. OPENING ADDRESS BY DR. AGUSTÍN AYALA-CASTAÑARES
CHAIRMAN OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

25 October 1979

I thank Dr. Kaddoura for his very stimulating speech, and I hope that tomorrow we shall have the honour of receiving the Director-General of Unesco in this Assembly.

This eleventh session of the Assembly is of particular importance in view of the historic times we are living through. There is no doubt that in the next few years there will be radical changes in the IOC, largely as a consequence of the deliberations of the Third United Nations Conference on the Law of the Sea, which has referred the marine sciences to higher levels of governmental machinery. The fact that ever since 1973, approximately 160 countries have been meeting in the Conference is no coincidence, but is obviously due to the priority accorded by the international community to the study of the oceans. Now that its delicate and complex deliberations are coming to an end, we hope that the new legal regime for the oceans which the Conference is developing will contribute towards promoting both scientific research and international co-operation in the field of the marine sciences.

I have pleasure in informing you that we now have 103 Member States. Today we have the following countries represented among us for the first time: The Bahamas, Cyprus, Iceland, the Democratic People's Republic of Korea, Nicaragua, Western Samoa, Saudi Arabia and the Republic of Seychelles, which have joined the IOC during the intervening period between the last session and this one. On behalf of the Commission I extend a very warm welcome to these countries; we hope that these new members will find in our organization an adequate response to their interests and needs, and we also invite them to take an active part in the programmes and work of the Commission.

I am convinced that the Commission will play a decisive role in the future, since the sea and its resources, our knowledge of which is still inadequate, constitute one of the greatest potential sources of wealth, which should be properly used and equitably distributed for the welfare of mankind.

Each day sees the emergence of increasing interests and demands on the IOC, above all in respect of the developing countries, which have reconsidered their national priorities and are carrying out a regrouping and channelling of their limited human and material resources with a view to increasing their competence in the marine sciences; here our Commission and Unesco will continue to provide guidance, advice and assistance. For these countries, research in the marine sciences can develop into a fitting and effective tool for strengthening their economic and social development.

All this suggests that interest in the IOC will necessarily continue to increase in the next decade, provided that the Commission responds adequately and on a timely basis to the needs and interests of its Member States.

The timetable of work of this Assembly has been changed by a decision of the Executive Council so that we can carry out our tasks more efficiently.

In the next few days we shall begin to study the reports from the committees we set up, during the Preparatory Meetings for this Assembly, on the Ocean Sciences, Ocean Services, and Training, Education and Mutual Assistance in the marine sciences (TEMA), and we shall adopt the relevant resolutions on these operational activities of the Commission.

We shall also begin to study four structural aspects: (1) the proposal to amend our Statutes which, if approved, will be sent to Unesco for its consideration before the twenty-first session of the General Conference; (2) the results of the work on the Future Role and Functions of the Commission (FUROF), as well as the relevant recommendations submitted by the Executive Council for consideration by this Assembly, which is called on to adopt the relevant resolutions; (3) taking a decision on the Scientific Advisory Board (SAB); and (4) a study, and possible approval, of the outlines and responsibilities of our subsidiary bodies. All these points are crucial for the Commission, and should be discussed very carefully and responsibly by this Assembly.

As regards the Third United Nations Conference on the Law of the Sea, with which the Commission strengthened its relationship through its participation in the seventh and eighth sessions, we shall try to define the nature of our participation at the ninth session next year, and we hope that it will continue to be useful.

It is my sad duty to inform the members of the Assembly that the Commission has suffered grievous and irreparable losses. Since the tenth session of the Assembly, we have had taken from us some very good friends, both scientists and administrators, who all made their mark on the Commission in both their individual and professional capacities. They include:

Professor Erich Bruns, of the German Democratic Republic, who died suddenly of a heart attack at the age of 78. He was the founder of the Institut für Meereskunde and its first Director until 1965. He was the first outstanding scientist to represent his country at the Conference of Oceanographers of the Baltic, and also represented his country in other international bodies.

Professor Pieter Korringa, of the Netherlands, was born in 1913 and died on 13 July of this year. In 1957 he was the Director of the Netherlands Institute of Fisheries Research, which developed under his leadership. He was also very active at the international level, in ICES and other organizations, including the IOC, with which he was actively involved. Throughout his long and brilliant career Professor Korringa was a fine example for all biologists to follow.

Professor Donald L. McKernan, of the United States of America, died while on a mission on 9 May in Beijing, China. He participated actively in the preparatory work leading up to the establishment of the IOC, and was also involved in the Commission itself, frequently acting as head of the United States delegation until he retired from government service in 1973.

Professor John E.G. Raymont, of the United Kingdom, died in Australia on 30 August 1979 at the age of 64. He had been Professor of Biological Oceanography at the University of Southampton since 1949, and was going to retire next year. In addition to being an expert on his special subject, Professor Raymont was very well known for his training and educational activities, both in the United Kingdom and elsewhere. When working for the British Council he was a member of the TEMA Working Committee of the IOC, in which he made a significant contribution towards advancing the marine sciences in the developing countries throughout the world.

Academician Vasily Vladimirovich Shuleikin, of the Union of Soviet Socialist Republics, was born in 1895 and died in 1979. He was one of the founders of the modern marine sciences, and also a very well known theoretical physical oceanographer who made important contributions towards developing the theory of the ocean waves.

Professor George P. Woollard, of the United States of America, was born in 1908 and died in 1979. He was one of the prominent figures in marine geophysics. His contributions in the fields of gravimetry, geodesy, geomagnetism and the geophysics of refraction have left a lasting mark. He was one of those who planned the International Geophysical Year and the Upper Mantle Project, which constituted fundamental progress towards the world-wide development of oceanography. The death of Professor Woollard has deprived marine geophysics of one of its main founders.

I invite you to observe one minute's silence in honour of their memory.

Before concluding, I should like to announce that the Secretary of the Commission, my good friend Mr. Desmond P.D. Scott, has decided to retire. He will leave a gap which it will be difficult to fill in view of his ability, his great dedication to his work and his well known efficiency.

At the same time I foresee that Dr. Mario Ruivo, who has been appointed by the Director-General of Unesco to take over from Mr. Scott, will follow in his steps.

Members of the Assembly, we all share the hope that this meeting will be a useful one, and for this we must be dedicated, show our goodwill, and do our best. I invite you all to make a joint effort to make the meeting a success.

Thank you very much.

C. ADDRESS BY MR. AMADOU-MAHTAR M'BOW DIRECTOR-GENERAL OF UNESCO

before the IOC Assembly

26 October 1979

Mr. Chairman,

I should first like to say how happy I am to be with you this morning, on the occasion of the eleventh session of the Assembly of the Intergovernmental Oceanographic Commission. I am sorry I was unable to attend your opening meeting yesterday, being absent from Headquarters, as you probably know. I take pleasure in welcoming you all today, however, and telling you how much we appreciate the close cooperation that has always been maintained between the Commission, its Executive Council and the Unesco Secretariat. Then again, Mr. Chairman, I want to thank you personally in the presence of the members of the Commission and your Executive Council for the helpful opinions that we have been given with a view to the appointment of a new Secretary of the Intergovernmental Oceanographic Commission.

As you know, the present Secretary of the Commission, Mr. Desmond Scott, is going to leave us at the end of the year, and I should like to take this opportunity of paying tribute to him and telling him what fruitful results have come out of the work he has done as Secretary of the IOC over the last few years. I shall refer later on, moreover, to the increase in the Organization's activities in the field of the Marine Sciences apart from the specific activities of the IOC, but I think that the two are linked. I should also like to thank the members of the Council in your presence for the assistance that they have given us in the selection of Mr. Scott's successor. You know that after the consultations with the Executive Council of the IOC, several first-rate applicants were short-listed, one of whom was selected after

consultation with the Council and also - as required by the Statutes - with the institutions of the United Nations system concerned and Unesco Executive Board. I want to say to those who were short-listed by the Council but were not appointed that we appreciate the close co-operation established between us. We sincerely hope that it will be developed.

Dr. Mario Ruivo, who is to succeed Mr. Scott, is with us here in this room and we are sure that he will continue along the same lines as Mr. Scott and that the Commission's Secretariat will not fail to develop its activity.

What is more, following the exchange of views in which you engaged yesterday - concerning which I was informed by my colleagues, Dr. Kaddoura in particular - I should like to emphasize the importance that we attach to the Commission's work and our resolve to do all we can so that its activity will be extended and strengthened. Besides, it is a fact that the Commission today is exercising an influence throughout the world that is proving more and more productive and is reflected in the number of new Member States. I think that countries having a seaboard are increasingly joining the IOC, and eight new Member States are to be seen in your midst since the last session of the Assembly. And I think that in coming years other States will join those represented in this room.

This increasing universality of the IOC seems to me to be of capital importance, inasmuch as it is going to make possible an intensification of the Commission's action in all parts of the world. While on this subject, I should like to welcome the presence in this room of Ambassador J.M. Bákula, Secretary-General of the Permanent Commission for the South Pacific, and Mr. B. Zuleta, Special Representative of the Secretary-General for the Third United Nations Conference on the Law of the Sea, with whom close co-operation has been established directly, outside the activities of the Commission, in so far as the Conference on the Law of the Sea is concerned. In passing, I should like to thank the Commission for having also represented Unesco at the Conference on the Law of the Sea. I hope that a step further will be taken in the solution of the problems facing the different Member States at the next session of the Conference.

I should also like to say that Unesco is currently trying to strengthen its science and technology programmes in regard both to research and training. You know that following the United Nations Conference on Science and Technology for Development, held in Vienna, to which I shall come back later, the Executive Board gave me precise directives which, I believe, are now going to make possible an unprecedented development of the Organization's scientific activities. However, in so far as the United Nations Conference on the Law of the Sea is concerned, I should merely like to confine the fact that we are determined to contribute as fully as possible through the Intergovernmental Oceanographic Commission. You all know that, in addition to the Commission, Unesco has a Division of Marine Sciences, the activity of which has increased significantly over the past four or five years. In 1973-1974, this Division managed operational projects accounting for approximately half a million dollars. In 1979-1980, such projects have amounted to about ten million dollars and in 1981-1982 are expected to amount to more than fifteen million dollars. These funds are deposited by the Member States themselves and are designed to develop their own infrastructures or to help other Member States with which they have links. This is what we call the funds-in-trust system, the funds being made up of amounts contributed by Member States for activities of interest to them or to assist other Member States. We think that the Intergovernmental Oceanographic Commission has played a major part in stimulating the development of these activities in a number of Member States which have set up laboratories, research centres and training centres in their countries.

Turning now to the United Nations Conference on Science and Technology for Development, this has also been a major event in the United Nations system. I can assure you that Unesco will contribute towards implementing the Plan of Action adopted by the Conference, once it has been submitted to and adopted by the United Nations General Assembly. This will take place in the next few days, but the Executive Board has already given me directives of such a nature that we have been led even to make changes in priorities in the preparation of Unesco's next programme and budget. You know that the Organization's activities are defined in the context of a six-year plan. This plan was adopted in 1976, the first instalment covering the years 1977-1978, the second 1979-1980, and the last 1981-1982; however, on account of the change in our budgetary cycle, the Organization's next programme and budget will cover the years 1981, 1982 and 1983; and growth rates were attributed by the General Conference to the various objectives relating to either education, or culture, or communication, or science and technology. But after the Vienna Conference, I have found it necessary, for the preparation of the next programme and budget, to take as a hypothesis the doubling of the growth rate for activities in the field of science and technology, which means that we shall be forced to cut back the growth for certain objectives relating to other fields of Unesco's competence, and even to withhold growth from some activities in order to give increased importance within the Organization to science and technology. It goes without saying that the scientific and technological activities which will thus be carried out in the context of the Organizacion will also concern the field of oceanography and the marine sciences, and we should be very glad to have any suggestions you may wish to make during this Assembly session for improving Unesco's programmes in regard to oceanography and the marine sciences.

It can also be said, quite apart from the growth of Unesco's activities, that prospects have opened up for scientific and technological development in the framework of the fund which is to be established under the United Nations Development Programme, and which, in accordance with the desire expressed by the Vienna Conference, should amount to at least 250 million dollars in the first two years. We consider that this fund also offers prospects for increasing certain activities in respect of oceanography, and I need hardly say that we ourselves would be prepared to co-operate not only with the Commission but also directly with those Member States who might wish to benefit from this fund in spheres related to oceanography and the marine sciences. Furthermore, in addition to the United Nations Conference on the Law of the Sea and the United Nations Conference on Science and Technology for Development, there will shortly be held the United Nations Conference on New and Renewable Sources of Energy, which in my view concerns the Commission just as it does Unesco's activities with regard to the marine sciences. There is no doubt that the sea constitutes an extremely important potential source of energy, a source which has possibly not yet been exploited as it might have been in certain regions of the world.

Mr. Chairman, that is what I wanted to say at this stage. In all our future science and technology programmes we shall now emphasize training and research problems, as well as problems arising in connection with the creation of infrastructures in the different Member States. However, I wish to stress that we cannot conceive of action by the Organization independently of specialists, that is to say without the help of scientists from the whole world. We consider that the value of a great number of our intergovernmental programmes stems from the fact that they have brought together at one and the same time those who have power of decision, those who act and those who carry out research, that is to say the creators of science and technology.

We therefore attach very great significance to co-operation with international scientific communities through non-governmental organizations, and also through the contacts we have directly with universities, research institutions and individual personalities. In this connection I shall ask my colleagues to distribute to you a

document dealing with these questions drawn up with a view to the preparations for the Vienna Conference. Our publications include a number of studies on science and technology, and as you know, we held a symposium here on the occasion of the celebration of the centenary of Einstein. I shall also arrange for you to receive the conclusions reached in discussions by the scientists who have attended meetings here.

Mr. Chairman, this is all I wanted to say, while again welcoming the close co-operation existing with you and the Executive Council, and expressing to the members of the Commission our determination to continue to act along the lines defined by the Commission, in order not only to promote progress in the marine sciences but also to enable all countries, and all peoples, to turn to the best possible account the extraordinary resources that lie hidden in the sea.

Thank you, Mr. Chairman.

D. REPLY BY DR. AGUSTÍN AYALA-CASTAÑARES
CHAIRMAN OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

26 October 1979

Thank you very much, Mr. Director-General of Unesco, for your important message and for devoting your time to us in this Assembly session. I must not let slip the opportunity afforded by your being here with us today, to convey to you, before this meeting, my cordial thanks for the kindness you have shown in receiving me, whenever it has been necessary, to discuss, at length, matters relating to the Commission, for which you have shown the obvious understanding, goodwill and extensive knowledge borne out anew by the remarks you have just made.

It is also right that I should mention the kind consideration I have so often had from Dr. Federico Mayor, the Deputy Director-General, and Dr. Abdul-Razzak Kaddoura, the Assistant Director-General for Science, with whom I have maintained frank and constant contacts during my term of office as Chairman of the Commission.

Nor must I miss this opportunity of mentioning the very positive response this Commission has had from the Executive Board and the twentieth session of the General Conference of Unesco, as reflected both in the statements of the delegates and in the resolutions adopted. The attitude of such distinguished Unesco officials and the action of the Executive Board and the General Conference give us grounds for optimism about the relations between this Commission and the Organization of which we form part.

In connection with what you have just said, Mr. Director-General, I think that we all agree with you about the growing importance at this time of science and technology and, in particular, of marine sciences, and the part that this Commission can play, in conjunction with the Division of Marine Sciences, in their development. It seems to me to be very important to underline how vital it is for this Commission, the main aim of which is scientific research, to maintain high standards in its work so that we may always be concerned with a "first-class science". To do this, we have to combine two major factors: on the one hand, we must have highly qualified staff and on the other, we must constantly be working in response to the interests of the Member States, with the flexibility required to give them the elements they need to be able to produce this high-level science. To attain this goal of high-level

science, it is essential for us to examine conscientiously the way in which the IOC can help to improve the standards of scientific and technical personnel in developing countries so that they may have the opportunity to play an active role. To do this, there must be a strengthening and reinforcement of our TEMA activities, with greater imagination and creativity in making the adjustments and efforts that are called for. For this, we should bear in mind the support which can be afforded by the various Member States, the members of the Secretariat, Unesco's Division of Marine Sciences, and the agencies of ICSPRO, and we should set up appropriate machinery for the transmission of knowledge and technology to our countries.

In these efforts, the industrialized countries should make a generous, disinterested contribution for the benefit of the developing countries, while the latter, in their turn, should be receptive and promote a suitable atmosphere to facilitate this transmission.

The courtesy and consideration you showed this Commission in the consultation for the appointment of the new Secretary was a special source of satisfaction to us, as it enabled us to have a fruitful dialogue for which we thank you. As regards your comment that the preparation of the programme and budget and the Medium-Term Plan is soon to begin, Mr. Director-General, I hope that the efforts we are making in budgetary planning and our work on the Future Role and Functions of the Commission, will in due course be of use to Unesco.

As you know, Mr. Director-General, over the past two years, in pursuance of the instructions given by the Assembly, I have held meetings with the Executive Heads of various agencies of ICSPRO. They have shown their sympathy for the Commission, which leads me to think that we can be optimistic, circumstances permitting, about our attempts to extend the relations between the Commission, Unesco and the various other organizations of the United Nations which make up ICSPRO for the purpose of reinforcing activities in marine sciences.

Lastly, Mr. Director-General, I should like to tell you once more how grateful this Commission is to you for being with us on this occasion. Thank you very much.

E. STATEMENT BY DR. K.N. FEDOROV
PRESIDENT SCOR

(agenda item B.4.1)

25 October 1979

Mr. Chairman, ladies and gentlemen,

SCOR first of all would like to express its satisfaction with the considerable progress achieved in the reassessment by the Commission of its marine science programmes, as it is evident from the Report of the Committee I. The discussion of this report, entitled "Ocean science", provides for SCOR the only opportunity on the agenda to make a general statement on its relations with IOC.

Marine science has been advancing at a very rapid pace over the past decade. Spectacular achievements marked this progress in a number of fields. Just to mention a few of them:

discovery of mesoscale eddies in the ocean;

recognition of the importance of the meridional transport of heat in the upper ocean and of its variability with all its effects on climate variability;

identification of major mixing processes in the ocean and finding ways to estimate their effects quantitatively;

numerical modelling of the internal dynamics and general circulation of the oceans;

discovery of oceanic fine structure in temperature, salinity and velocity and of its relation to oceanic fronts of all scales;

successful numerical modelling of oceanic ecosystems (e.g. in upwelling areas);

palaeo-oceanographic studies which lead to a reconstruction of major oceanographic features of the distant geological past and of their impact on the climate of our planet;

the assessment and recognition of the important potential which remote sensing holds for marine science.

If I decided to take your time and draw your attention to these achievements, the list of which was by no means exhaustive, it was because SCOR as one of the official scientific advisory bodies of the Commission wishes to remind the members of the Commission of the effect this tremendous and extremely rapid progress of marine science is having on the future role, functions and programmes of the IOC.

SCOR has unfailingly served the IOC as its scientific adviser for almost 20 years of its existence. In carrying out its functions SCOR has always enjoyed very close contacts with the leading marine scientists of the world, who rely upon SCOR for stimulating the most important front-line areas of research. SCOR has earned these close contacts in a hard way by learning to be selective, i.e. through undertaking only those tasks which are associated with the progress in the most important lines of research. This is precisely why SCOR puts such a high value on its advisory associations with IOC and Unesco. These associations permit SCOR to channel the most important results of science progress into the wider oceanographic community and governmental circles of both developed and developing countries. SCOR considers the efficient functioning of this channel to be the necessary condition of the current progress in marine science. Therefore SCOR stands ready, as usual, to provide IOC with all necessary scientific assistance which the Commission may wish to request.

F. PRESENTATION BY PROFESSOR ROGER REVELLE CHAIRMAN, JOINT SCOR/IOC COMMITTEE ON CLIMATIC CHANGES AND THE OCEAN (CCCO)

(agenda item A.3.2.2)

16 October 1979

Mr. Chairman, members of the Commission,

I am about to describe what I believe to be the most important programme that has challenged the IOC in many years, and for this reason, I beg your indulgence if I begin with a little lecture about climate.

Climate can best be described by what it is not - it is not the weather. The weather consists of those phenomena in the atmosphere that can be predicted to a useful degree of detail in space and time. The modern theory of meteorology demonstrates rather conclusively that predictability is impossible for the weather after about two weeks. So far, weather forecasters have been able to make long-range forecasts which are more or less useful for several days and they hope that, by continuing their theoretical and observational studies, they will be able to gain a skill in forecasting which may extend for ten days to two weeks. Beyond two weeks, what we can say about the atmosphere is that it has statistics that are called climate. The average, for example, of the temperature over a period of years at a particular place or over a particular region or over the globe itself; the average precipitation and amount of snow; the average area of sea-ice covering parts of the oceans; the average wind speeds and directions - all of the phenomena of the atmosphere that are of importance to human affairs. A characteristic of climate, besides the fact that there are averages which we can use for convenience over any time period we are interested in, is that the climate varies. It varies on all time scales and all space scales and the longer the record, interestingly enough, the more the variation. The greatest excursion of climate conditions of which we are aware but which, fortunately, none of us has experienced, was the transition from the Ice Age to the present World Climate. For the last ten thousand years, the climate has fluctuated over rather a narrow range - only, perhaps, 2° Celsius or less, in the global average air temperature. There have been much greater variations in precipitation in particular places, but for the earth as a whole, probably a relatively small percentage variation in precipitation. The biggest climate change that we are aware of, especially in mid-latitudes, is the seasonal variation. We all know that the climate where we live is very different at one time of the year than it is at another.

The factors that control climate appear to be different from the factors that control the weather. The weather is determined by what the theoretical people call "the initial conditions". If we know the distribution of temperature, pressure, wind and water vapour at any one time, we can predict what will happen from these initial conditions for a few days. Climate, on the other hand - the average conditions over a time period and over a region in space - is controlled by what theoreticians call "the boundary conditions", mainly the amount of radiation coming from the sun to the earth's surface and the temperature of the sea surface in the case of the atmosphere, plus the internal dynamics of this marvellously complicated and intricate thermodynamical/hydrodynamical system.

Climate and weather are both important in human affairs. Mark Twain said that everybody talks about the weather but nobody is able to do much about it! There are some possibilities now that we will be able to do a few things to change the weather. People do not talk about climate so much but, in fact, it is of far greater importance than weather for many of our fellow human beings. Right now, for example, in India, the monsoon has hardly appeared in the Punjab in north-western India this year. The monsoon rains were very light. The result is that the Indian cereal crops will be seriously short at the autumn harvest. Similarly in the Soviet Union this year, because of climatic variations from the average conditions, there is a serious shortfall of wheat production. From the standpoint of energy planners who want to know what kinds of energy and how much to use, if it were possible to forecast what the climate would be next winter, it would be of the greatest value - worth literally, in the United States alone, perhaps a billion dollars. In India, how much hydropower will be available, how much thermoelectricity will have to be generated from imported oil, depends upon the amount of precipitation, which varies as climate varies. In architecture and construction planning, the average climate is, of course, of obvious importance, but the variations in climate are also important. From the standpoint of human health and welfare, again both the average climate and the variations in climate turn out to be highly significant. In designing water

supply systems for different purposes, a knowledge of the variations incclimate from year to year is very useful. And if we could possibly predict what next winter or next summer would be like, the results would be invaluable to water supply engineers.

We are concerned both with describing the climate and, if possible, eventually with predicting it. During my lifetime, one of the articles of faith of oceanographers has been that the ocean somehow controls the climate - that the ocean, because of its slow response time and slow relaxation time, affects the climate over periods at least of months and possibly of years. We are getting some support for this idea from theoretical models and also from statistical analysis. For example, there is a phenomenon called the Southern Oscillation, first discovered by Sir Gilbert Walker of the British Meteorological Office, in which there are what the climatologists call "teleconnections", that is correlations between events thousands of miles apart; the climate over a very large area from the eastern part of Africa to the west coast of South America seems to be affected by one very large-scale phenomenon. And this phenomenon is reflected in, and may be the result of, conditions in the upper layers of the western Pacific Ocean. As another example, there is fairly good evidence that the average temperature and precipitation over North America can be predicted, even if only roughly at the present time, but nevertheless with some skill, from the anomalies of temperature over a large area of the North Pacific during the previous summer. As still another example, the intensity of the monsoon in India, the amount of rainfall and the duration of the monsoon, seem to be related to cooling in the Arabian Sea and this, in turn, is related to the strength, duration, velocity and transport of the Somali Current off the Horn of Africa.

Interestingly enough, it may well be that the weather in the oceans determines short-range variations of climate in the atmosphere. We are now finding in the ocean a phenomenon that has been given the name of the "Mesoscale Eddies". These are strictly comparable hydrodynamically to the cyclones in the temperate latitudes of the Northern Hemisphere, the cyclones being phenomena that extend over 2,000 kms and last for several days and which are the principal causes of weather in mid-latitudes. In the ocean, the mesoscale eddies are much smaller in spatial dimensions, they are only 100-200 kms in diameter, but they persist for periods of up to four to six months. The configuration of the eddies, their location, the velocities of motion, and the temperature and heat transport, which are really the ocean weather, may be, in fact, closely related to the variations in the average conditions over several months in the atmosphere. Similarly, at greater depths in the sea, the eddies may have effects which persist for longer periods, so the ocean weather at depths of perhaps 500-1,000 metres, reflecting the mesoscale eddy phenomena in the upper layers, may persist for years and may give at least some possibility of forecasting the climate for years in advance. One of the concepts that we are starting out with is that the ocean weather lasting for a considerable time period may be related to variations in the atmospheric climate.

The climate of the ocean itself has an impact on human concerns, and in particular, we believe, on fish abundance and fish locations. The abundance is closely related to the success of the recruitment of a particular fish population and this recruitment success may be related to changes in the ocean circulation, in other words in the ocean climate. You have already heard a brief description of the World Climate Programme as it has been proposed and approved - proposed by the World Climate Conference and approved by the World Meteorological Organization and the International Council of Scientific Unions. In the early planning of this programme, it has been the policy of the World Meteorological Organization and of the International Council of Scientific Unions that the oceanographic aspects should be the responsibility of the corresponding ICSU body, the Scientific Committee on Oceanic Research (SCOR), and the corresponding intergovernmental body, the IOC. SCOR has acted here to appoint a Committee on Climatic Changes and the Ocean, consisting of some 11 members

and a group of about 15 corresponding members, the latter being the chairmen of those subsidiary bodies of SCOR and IOC which seem to be related to climate. For example, among the working groups of SCOR that are involved, are those on Carbon Budget of the Ocean, on Prediction of "El Niño", on Tropical Upwelling, and on Arctic Oceanography. Among the subsidiary bodies of the IOC, IGOSS is, of course, a very important member. The Working Group on WESTPAC will certainly play a large role, and so forth. The Committee on Climatic Changes and the Ocean met last week in Miami, Florida, following a more specialized meeting which dealt with the problem of monitoring the ocean from the standpoint of climate. This was called the Conference on a Pilot Ocean Monitoring Study. A great many decisions, at least preliminary decisions, were taken - decisions which should lead and can lead to future action. The Committee on Climatic Changes and the Ocean established five working panels; it will give you some idea, if I name these panels, of the concept the Committee has of the range and scope of its responsibility. The first panel, to be chaired by Professor Robert Stewart of Canada, will be charged with maintaining collaboration and co-operation with the Joint Scientific Committee for the World Climate Research Programme and to develop those oceanographic programmes which will support and strengthen the meteorological programmes. The second panel is on sea-ice. Sea-ice variation is one of the strongest signals of variations in climate in both the ocean and the atmosphere, because a very slight variation in meridional heat transport from south to north in the polar regions causes variations in the extent of sea-ice and there is a positive feedback relationship. If the sea-ice extends a little bit, the albado increases, less radiation is received, the air and water are cooled, and therefore the sea-ice extends further. The problem with this positive feedback is, of course, what stops the ice from extending all over the ocean.

One of the important oceanographic aspects of the sea-ice problem is that in those areas where sea-ice is continually formed, that is in areas of divergence in the sea-ice, where the sea-ice is splitting and new ice is forming, the salinity of the water near the surface is increased and consequently its density is increased, with the result that bottom water formation is accelerated and amplified.

The third panel will be one on climate and marine ecology. I have already mentioned the importance of variations in the ocean climate as far as fish location and the size and abundance of fish populations are concerned. Professor Alan Longhurst, also of Canada, is the biologist member of the Committee on Climatic Changes and the Ocean. Unfortunately, he was unable to come to Miami, so this panel on ecology is not very carefully thought out as yet. We are aware that we must deal not with single species but with the entire ecosystem of the ocean as it is affected by variations in climate.

The fourth panel, and perhaps the most interesting because it is based on a rather new idea, is on "high resolution palaeoclimatology". What we mean by this is that unlike the studies that have been made up to now of ocean bottom cores, which give the variations of conditions over centuries and at the minimum over a few decades, it may be possible by studying sediments accumulated in certain special environments, for example the Black Sea or the anaerobic basins off southern California, to find year by year variations in past conditions as they are reflected in the sediments. An equally promising idea is the study of the growth rings of corals. Corals in tropical waters grow very fast, and we know that at least in the Pacific the greatest variations in ocean water temperatures, greater than the seasonal variations, are those from year to year, which should be reflected not only in the rate of growth of the individual corals but also in the ratios of oxygen 16 to oxygen 18 and of carbon 13 to carbon 14 in the carbonate laid down by these organisms. Large molluscs like the so-called man-eating clams of the Pacific, may also show the same kinds of variations in annual growth rings in the oxygen and carbon isostope ratios. And if

this idea works out, it may be possible to multiply the numbers of time-series of climate over past decades and centuries, at least in terms of the temperature and possibly the salinity of the waters near the surface in the tropical and subtropical areas where these large invertebrate organisms grow. It may also be possible to get some similar time-series in high latitudes from corals that live at somewhat greater depths.

Finally, we established a fifth panel on theory, to deal with ocean and atmospheric models and on coupled models of the ocean and the atmosphere. This panel will also provide help to theoreticians in ocean monitoring and sampling problems - not only what to monitor to test particular models, but where to monitor and what the sampling and network design of the observations should be.

We decided on two major ocean experiments. One of the most important unsolved problems of the relationship for climate between the ocean and the atmosphere is the amount of heat transported from low latitudes to high latitudes by the ocean. We know how much heat must be transported by the ocean and the atmosphere together, because we know what the amount of outgoing radiation from high latitudes must be, compared to the incoming radiation at low latitudes. But how much is carried in the ocean and how much is carried in the atmosphere is not known within a factor of two, and the role of the mesoscale eddies is not understood at all. So we proposed what we called a "CAGE experiment", an experiment which will probably be conducted in the North Atlantic, starting either near the Equator and going up to 25° N or starting at 25° N and going perhaps to 45° N, with east-west "fences" across the ocean at these two latitudes. The cage would, of course, have to bounded on all sides; it would be bounded on the east and west by measurements of the meteorological processes taking place at the continental shorelines which would tell how much heat is carried across from the sea to the land or from the land to the sea. It would have to be bounded on the top by the upper limit of the troposphere; how much radiation is going out of the troposphere and how much is coming in. But the most difficult and challenging observations would be those of both the ocean and the atmosphere in two lines across the ocean, as I said, either at the Equator and 25° N or at 25° N and 45° N.

The second experiment, which will take years of preparation, will be what we have called "the global ocean circulation experiment", an actual attempt to map the currents in the upper water layers of the entire ocean. This is made possible by the existence of the satellites which for the first time make it possible for us to see the ocean as a whole on virtually a day by day basis. Another major decision was to accept the idea that there should be standard hydrographic sections in the ocean, along which standardized measurements should be made at regular intervals, particularly where these are of interest to more than one country. We made a list of what we called "pilot ocean monitoring sections", including several of those which have been occupied repeatedly by our colleagues from the Soviet Union; a long section along the meridian of 137° E which has been occupied for many years by the Japanese; and a similar section going out from the coast to weather station "PAPA" which is occupied by the Canadians; and a few others.

We also decided on two conferences we would like to hold in the next two years. One would be a conference on experience that has been gained from time-series. There are a great many time-series of oceanographic measurements, for example the Soviet Union has for nearly 70 years conducted measurements along a section of the Barents Sea, and there is a great deal of information in that section, which shows marked variability from year to year. Similarly, my own institution, the Scripps Institution of Oceanography has measured the temperatures and salinities along the California Coast for about 70 years, and there are many other long time-series of observations. But few of them, as far as I know, have ever really been examined to

find out what could be learned from them. What we propose is to call a conference of people who have made these series, ask them to give us all the interpretation they can, all the ideas they can glean from these sections, and also, of course, what the unknowns still are.

The second conference would be on the impact of the oceans on global climate. This has been recommended several times: by the Joint Organizing Committee for GARP; by SCOR at its Kiel meeting; and later at the Miami meeting on the Pilot Ocean Monitoring Study. We want to gain greater understanding of the ideas that I have been touching on very generally about the relationships between ocean phenomena and atmospheric phenomena in so far as climate is concerned.

We also considered the problems of data management and instrumentation. The present systems of ocean data management are inadequate from the standpoint of attempts to predict short-range variations in climate, variations from several weeks to several months, because the data do not come in soon enough. The XBT, the expendable BATHY/TESAC observations from ships-of-opportunity in the North Pacific coming in over the WMO network, pass through about half a dozen hands with all the errors that are likely to be experienced by repeated manipulation or repeated transmission of the data. And moreover, much of the data come in about three months after they are taken, so an attempt to use these Pacific Ocean data to say what the climate during the next season in North America will be, is completely impossible - the data are just not available until the climate is upon us. We need an automatic data transmission system for these XBT observations so that they will be immediately transmitted to a data centre where they could be compiled and manipulated and used.

There are a whole series of exciting, new instrumental possibilities, the most important being, perhaps, those that are related to the satellites. It turns out that at least four countries or groups of countries may be putting up satellites that can observe the ocean - the Japanese, the European Space Agency, the United States and the Soviet Union. The satellites may have at least four very important measurement capabilities, the most important being the measurement of sea level. If we could map the sea level of the ocean, we would be mapping the geostrophic currents at the surface, that is the total current motion at the surface related to the pressure field. If we could at the same time know the temperature and the density distribution below the surface, and thereby the baroclinic circulation, we would have a real understanding of the large-scale motions in the oceans. The problem of the reference velocity can be solved if you have these two measurements, that is both the surface measurements and the measurements giving the baroclinicity. Other things that the satellites can measure are wind stress on the sea surface, currents near the surface by doppler signals of various kinds, and very roughly at the present time, the surface temperature. By very roughly, I mean with errors of several degrees, 2° to 3° or more, due to the moisture content of the atmopshere. The problem is to correct the signal received from the sea surface by removing the part due to atmospheric moisture. We need to be able to measure the ocean temperature from satellites to within a degree Celsius because the interannual variations are of the order of a degree Celsius. In general, with the satellites we need not "ground truth" but "sea truth" and one of the most important kinds of sea truth will be the measurement of sea level from tide gauges. So we should have an extensive programme, particularly on islands, of tide gauge installation, maintenance and operation. Member States of the IOC can contribute to this important part of the monitoring programme.

One of the most successful components of the so-called FGGE Experiment, and of previous GARP Experiments, has been the drifting buoys, which are now scattered, several hundred of them, all over the Southern Oceans, and they have behaved very well. Unfortunately, these buoys give only meteorological information at the present

time, that is surface ocean temperature and atmospheric pressure. What needs to be done is to develop these buoys so they will also measure the temperature of the water and may be even the salinity of the water below the surface and the currents in the upper water layers.

One of the most successful monitoring programmes of the last few years has been the use of ships- and fleets-of-opportunity, and this is related to the enormous growth in open-ocean shipping over the past 15 years. It is actually possible now to obtain fairly continuous XBT measurements over a broad area in the Pacific and also along a series of tracks across the Pacific. There are still big holidays between these tracks but it may be possible to fill these out with buoys.

Finally, the standard instrument of the oceanographer is the oceanographic research ship. One of the problems with oceanographic research ships is that they are becoming more and more expensive, the rate of increase in their cost is far greater than the rate of inflation. A ship that used to cost $800/day 20 years ago now costs $8,000/day; so that oceanographic research ships have to be carefully husbanded and used only for those things for which they are absolutely necessary. But they are absolutely necessary for many kinds of monitoring observations.

Between all of these different kinds of instruments, it should be possible, as I suggested earlier, to make ocean synoptic maps of the same kind that we now obtain of the atmosphere. Unfortunately, these maps may need to be in considerably greater detail than maps of the atmosphere, because of the size of the mesoscale eddies. Here we have some hope of a new type of measurement which has been given the fancy name of acoustic tomography in honour of the two scientists who recently won the Nobel Prize for inventing X-ray tomography. Instead of X-rays, the travel time of an acoustic signal from one buoy to another will be measured. If we have a sufficient number of buoys and a sufficient number of paths along which the sound signal is received, we can make an essentially three-dimensional map of the temperature distribution of the water within a certain level of accuracy. Here the oceanographers are utilizing the ideas, the theory and the experience of the seismologists, who have developed inverse theory as a powerful tool in understanding the interior of the earth. It may be possible to use the same kind of theory and acoustic signals to understand the mesoscale eddies in the ocean and perhaps to arrive at statistical descriptions of these eddies which will be sufficient for giving us forecasting skill in climate.

In concluding, let me say that there are two important aspects of the world climate problem. One is in statistics, that is the average conditions, and the moments of the variance. And second is actually the possibility of forecasting climate. We cannot forecast it now, we may never be able to forecast it but if we could, the results would be so valuable that the gamble is worth taking. And I conclude by emphasizing what I have said at the beginning, that the World Climate Programme and the possible role of the IOC in that programme represents the greatest challenge and the greatest responsibility that this body, in my experience, has ever had.

G. PRESENTATION BY PROFESSOR ROGER REVELLE
CHAIRMAN, JOINT SCOR/IOC COMMITTEE
ON CLIMATIC CHANGES AND THE OCEAN (CCCO)

(agenda item A.5.1.1)

18 October 1979

Mr. Chairman, members of the Commission,

I am going to talk about ocean monitoring as it is needed for the World Climate Programme, whereas as in the other discussion I talked about the nature of climate and what possible role the ocean may play. I am going to report basically on the results of the Pilot Ocean Monitoring Study meeting in Miami (1-5 October 1979) and the meeting of the Committee on Climatic Changes and the Ocean (Miami, United States of America, 8-12 October 1979).

When it comes to ocean monitoring from the standpoint of climate, there are four considerations that must be kept in mind: data accuracy, data coverage, data timeliness, and economy of data retrieval. First, of course, is the accuracy of the measurements and the accuracy of the reporting. As a criterion for accuracy we can say that the accuracy of the measurements should be relatively small to the variance of the property which is measured - perhaps one-tenth of the variance of the property measured. For example, in ocean surface temperature the variance is of the order of 2° C so that the accuracy of the measurements we should aim for is about two-tenths of a degree Celsius (2° C). As far as data coverage is concerned, we thought about coverage from several points of view: firstly, the kind of data that are needed; secondly, the geographical coverage; thirdly, the coverage with depth in the ocean; and fourthly, coverage in terms of time. The third consideration is that of data timeliness and from this standpoint, if we are going to be able to forecast the climate for a few months in advance it will be necessary to have the data in real-time or near-real-time and this, of course, is the object of IGOSS. Fourthly, we need to think about the economy. We must make measurements as cheaply as possible and utilize the maximum available resources so that measurements, in general, should be those that have several users all of whom can contribute to the cost of obtaining the measurements - not only the Climate Programme but fisheries, world shipping and other ocean interests.

Coming first to the kinds of data that need to be covered (expanding on the consideration of data coverage), here we need to think basically of models of the ocean and coupled models of the ocean and the atmosphere and the same data that can be used both to test those models and to use them. There are really two kinds of data about which we are concerned. One is data that will give us the currents, the circulation of the ocean, the "motions in the oceans" as Harold Stratton used to call them. And second, the kind of data we are concerned with are those that describe the temperature distribution at the surface, geographical temperature distribution and how these distributions may change with time, which involves temperature measurements beneath the surface. A third kind of data that is probably of importance but not of such great importance may be the changing albedo of the sea surface. Concerning the data needed for current measurements, these data are primarily measurements of sea level which will give us the geostrophic current at the surface, which we hope can be obtained from satellites and sea level measurements by tide gauges, particularly in island stations. To combine the geostrophic current at the surface with the baroclinic currents near the surface, we need temperature and salinity at least down to the main thermocline or somewhere within the main thermocline. To get the total current we also need actual current measurements - in order to get the Ekman drift as well as the geostrophic current. Temperature measurements

with depth and time will also give us something else and that is the heat exchange across the sea surface. It is not enough to get surface temperature, we need to know the changing depth of the thermocline, the amount of heat or the change in temperature in the thermocline due to mixing with deeper water.

The geographical distribution of temperature with depth and time plus measurements of currents will give us the meridional heat transport. This is a very important parameter from the standpoint of the climate monitoring and it is not known now within a factor of two.

From the standpoint of forecasting climate over periods of several months, and perhaps years, what is needed is knowledge of anomalies of sea level and anomalies of sea surface temperatures and particularly their persistence, and this will depend not only on phenomena at the surface but down through the upper ocean layers down to the main thermocline. The existence of these persistent anomalies represents the main hope for forecasting atmospheric climate. The albedo of the sea surface probably depends on the organic matter in the water near the surface or at the surface. We had a very interesting report from Professor R.P. Chesselet who pointed out that in the top few microns of the ocean there are as much as 20 grammes per litre of organic carbon. This, of course, on an ocean-wide basis amounts to something like twenty million tons - not very much but very important from the standpoint of the surface phenomena, particularly the albedo.

If we think now about the geographic coverage as well as the kinds of data, the needed coverage depends upon what purpose we are making observations. If we want to study the mesoscale eddies which seem to be the most energetic phenomenon in the ocean and which correspond closely to the waves in the westerlies, the large-scale atmospheric phenomena that make the weather, we probably need data for areas of the order of 25 kms on the side and time measurements of the order of one day. And this will put very severe constraints on the orbits of satellites. We hope that the satellite measurements of sea level can be made accurate to about $\pm$ 5 cms. What will determine this accuracy is the accuracy with which we know the geoids, the accuracy with which we know the satellite orbits and our ability to rid ourselves of the aliasing due to tidal fluctuations in the sea surface and the problems of reduced accuracy due to the sea state, that is to the waves on the sea surface. Four countries or groups are now planning ocean observing satellites: the European Space Agency, Japan, the Soviet Union and the United States, and there is a great need to co-ordinate the planning of these four groups of satellites both so that they will obtain the desired kinds of measurements and so that between them their orbits can be adjusted to get the maximum of oceanographic information.

From the standpoint of what we could call "sea truth" as opposed to "ground truth" we, of course, need as many tide gauges as possible and we need methods for processing the tide gauge measurements to extract sea level from them and to transmit that sea level information within a few days of the time it is obtained. This will represent a great responsibility, I think for TEMA, to train tide-gauge operators in less developed countries and particularly to train them in extracting the sea level from the tidal measurements.

We have identified a few problems of accuracy in addition to what I have said already about the satellites. One of the principal ones concerns the oldest oceanographic measurements, which is merely the measurement of the sea surface temperature made from ships; shipborne measurements of sea surface temperature. These were probably more accurate in the nineteenth century than they are today. Today the accuracy seems to be of the order of $\pm$ 1° Celsius and there may be a good deal of biasing because of the use of injection temperature rather than bucket temperatures. What we need are measurements with an accuracy of about two-tenths of a degree

Celsius and I think this represents a great challenge to IGOSS to try to improve the accuracy of shipborne surface temperature measurements.

From the standpoint of surface temperature measurements from satellites, the problem is not only the accuracy but even more serious the biasing, or systematic errors, which are due to water vapour in the atmosphere which give errors, systematic errors, of the order of 2° Celsius to 3° Celsius. It is hoped that it will be possible to correct for the water vapour in the atmosphere and to get the satellite surface temperature measurements to an accuracy of less than 1° Celsius. But these data are now being taken, need to be archived in such a way that it will be possible to correct them if we also have the archiving of the atmospheric water vapour content.

From the standpoint of the XBTs, I am very encouraged to hear about the progress that is being made within IGOSS, but there are still considerable difficulties about reporting and one would hope that some kind of automated system of reporting would be possible which would give good data in real-time to people who want to use the data in modelling and in forecasting.

ANNEX IV

A. LIST OF IOC MEMBER STATES (as at 3 November 1979)

B. OFFICERS OF THE COMMISSION (as from 4 November 1979)

C. STATE-MEMBER REPRESENTATIVES ON THE EXECUTIVE COUNCIL (as from 4 November 1979)

A. LIST OF IOC MEMBER STATES (as at 3 November 1979)

Algeria
Argentina
Australia
Austria
Bahamas
Belgium
Brazil
Bulgaria
Cameroon
Canada
Chile
China
Colombia
Congo
Costa Rica
Cuba
Cyprus
Denmark
Dominican Republic
Ecuador
Egypt, Arab Republic of
Ethiopia
Fiji
Finland
France
Gabon
German Democratic Republic
Germany, Federal Republic of
Ghana
Greece
Guatemala
Guyana
Haiti
Iceland
India
Indonesia
Iran
Iraq
Ireland
Israel
Italy
Ivory Coast
Jamaica
Japan
Jordan
Kenya
Korea, Democratic People's Republic of
Korea, Republic of
Kuwait
Lebanon
Libyan Arab Jamahiriya
Madagascar
Malaysia
Malta
Mauritania, Islamic Republic of
Mauritius
Mexico
Monaco
Morocco
Netherlands
New Zealand
Nicaragua
Nigeria
Norway
Pakistan
Panama
Peru
Philippines
Poland
Portugal
Qatar
Romania
Saudi Arabia
Senegal
Seychelles, Republic of
Sierra Leone
Singapore
Somalia
South Africa, Republic of (suspended)
Spain
Sri Lanka
Sudan
Suriname
Sweden
Switzerland
Syrian Arab Republic
Tanzania, United Republic of
Thailand

Togo
Tonga
Trinidad and Tobago
Tunisia
Turkey
Ukrainian Soviet Socialist Republic
Union of Soviet Socialist Republics
United Arab Emirates
United Kingdom
United States of America
Uruguay
Venezuela
Viet Nam, Socialist Republic of
Western Samoa
Yugoslavia

Total: 103 members

B. OFFICERS OF THE COMMISSION (as from 4 November 1979)

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Dr. N.J. Campbell	Canada (First Vice-Chairman)
Professor Dr. C. Druet	Poland (Second Vice-Chairman)
Professor Inocencio A. Ronquillo	Philippines (Third Vice-Chairman)
Dr. A.R. Bayoumi	Egypt (Fourth Vice-Chairman)
Professor F. Vila	Argentina
Contra-Almirante L-C. de Freitas	Brazil
Mr. Luo Yuru	China
Capitan de Navío G. Angel Mejía	Colombia
Mlle M.-A. Martin-Sané	France
Professor Dr. H.U. Roll	Germany, Federal Republic of
Dr. S.Z. Qasim	India
Professor Dr. N. Nasu	Japan
Mr. S.O. Allela	Kenya
Mrs. T.F. Groustra-de Kat	Netherlands
Mr. J.G. Tobor	Nigeria
Dr. Sogui Diouf	Senegal
Sr. J.M. Turnay Turnay	Spain
Professor J.-O. Strömberg	Sweden
Mr. Salem Hadj Ali	Tunisia
Dr. E.I. Tolstikov	Union of Soviet Socialist Republics
Dr. P.F.G. Twinn	United Kingdom
Dr. Ferris Webster	United States of America
Dr. J.A. Galavis Seidel	Venezuela
Mr. Rade Stijelja	Yugoslavia

ANNEX V

DECISIONS TAKEN AT THE TWELFTH SESSION
OF THE EXECUTIVE COUNCIL REGARDING FUROF RECOMMENDATIONS 1-18

FUROF recommendation 1

The Working Group recommends that in the short term consideration be given to ways and means for funding IOC in a satisfactory way as a functional autonomous body within the framework of Unesco

At its eleventh session, the Council had approved the concept of the Commission being defined as a body with "functional autonomy within the framework of Unesco" and had adopted resolution EC-XI.15. This resolution instructed the Secretary to prepare a document giving a detailed explanation of what is meant by the phrase "a body with functional autonomy within the framework of Unesco" and a brief explanation of the reason for the amendment proposed to Article 2 of the Statutes.

The Secretary introduced document IOC/INF-408 - Proposed Amendments to the Statutes of the Intergovernmental Oceanographic Commission - and reported that it had been prepared in consultation with a legal expert and modified in agreement with the Legal Adviser of Unesco and the Assistant Director-General for Science. The text which was placed before the Council had been cleared with the Chairman of the Commission and the Director-General of Unesco.

He drew attention in particular to paragraph 2.17 of the document which in a concluding statement explains the effect of adding the words "functional autonomy within the framework of Unesco" to Article 1 of the Statutes.

The delegates of France, USSR, Australia, India, Canada, United Kingdom and Poland spoke in favour of submitting resolution IOC-XI/DR.29 and its accompanying document IOC/INF-408 to the Assembly for consideration.

It was noted by the Council that there were certain basic differences between resolutions EC-XI.15 and IOC-XI/DR.29, in particular by the addition of an amendment to Article 9 of the Statutes.

The delegate of France, speaking as Chairman of the Sub-group (formed during EC-XI) on IOC Structure and Objectives, recalled that the question of an amendment to Article 9 of the Statutes (alteration to the title of the Secretary), was not studied at the eleventh session of the Council because supplementary information had been requested in FUROF recommendation 2 and also on the meaning of the proposed change to Article 1, paragraph 1, of the Statutes. As recommendation 2 had now not been accepted, the proposal for an amendment to Article 9, paragraph 2, of the Statutes is a direct consequence of the amendment to Article 1, paragraph 1, of the Statutes and should be proposed to the Assembly.

The delegate of the USSR proposed the exclusion from resolution IOC-XI/DR.29 of the amendment to Article 9 of the Statutes because this was not in accordance with Rule of Procedure No. 56. The Council noted that the Assembly would need to waive Rule of Procedure No. 56 (under Rule of Procedure No. 58) in order to act on this amendment.

The delegate of Brazil reiterated his views, as presented in his opening statement (above). He added that, in any case, the functions contemplated by the amendments proposed by FUROF recommendation 1 could not, as several delegations pointed out, be construed as prejudging or opposing the negotiations in the Third United Nations Conference on the Law of the Sea, the results of which should be fully taken into account by the Commission only at the appropriate time. The explanations furnished in paragraphs 2.17, 3.2 and 3.3 of document IOC/INF-408 did not, in fact, make this understanding clear. He stated that he would not object to a consensus at this stage but he would be repeating his viewpoint when the item is taken up by the Assembly.

It was therefore decided to approve recommendation 1 and the concept as stated in paragraph 2.17 of document IOC/INF-406.

FUROF recommendation 2

The Working Group recommends that in the short term consideration be given to the appointment of a full-time executive officer of the IOC (Commissioner-General)

Although, in general, the Council did not support this recommendation, many Member States expressed:

1. their satisfaction with the Director-General's support toward elevation of the stature of the post of the IOC Secretary;

2. their view that there might be a need to review this recommendation in the light of the decisions of the Third United Nations Conference on the Law of the Sea (UNCLOS).

The Council decided, therefore, that this recommendation is not acceptable, but that the matter may be reconsidered at a later stage, if the Commission deems it desirable.

FUROF recommendation 3

The Working Group recommends that in the short term the selection of the IOC staff officers be made in agreement with the Commission, taking into account geographical representation and the needs of the Commission

The Secretary explained the present procedures for recruiting new IOC staff members. He noted that the present system was satisfactory except for the length of time between approval of the post and its occupation. He pointed out that the need to consult the Commission would prolong this recruiting process even more.

The Council noted the importance of geographical representation based on the ocean basins rather than on land masses. Instead of asking that the Commission be consulted on appointments, it was decided to instruct the Secretary to inform the Assembly and Executive Council on all appointments to the IOC Secretariat.

The Council approved recommendation 3 with the following amended text, for submission to the Assembly as resolution IOC-XI/DR.36 rev. 2:

"recommends that in the short term the selection of the IOC staff officers continue to be made in agreement with the Secretary, taking into account geographical representation and the needs of the Commission".

FUROF recommendation 4

The Working Group recommends that in the long term the IOC take the necessary action to initiate a study on the future possibility of establishing the IOC as an independent United Nations body, or as part of a comprehensive organization established by treaty and including oceanographic components of other United Nations bodies

The Chairman recalled that at its eleventh session, the Council had already decided that this recommendation was premature. The Council reaffirmed its previous opinion and decided not to accept the recommendation at this time.

Certain members felt, however, that it might be desirable to reconsider this recommendation later in the light of the outcome of the Third United Nations Conference on the Law of the Sea.

FUROF recommendation 5

The Working Group recommends that in the short term the IOC in reviewing its biennial budget identify the need for additional resources and submit, as appropriate, such requirements to Unesco

The Chairman emphasized the need for the elected officers and representatives of the Commission to work more closely with Unesco National Commissions, in order to acquaint them more fully with the work of the Commission.

The Council approved recommendation 5 unanimously for submission to the Assembly as part of resolution IOC-XI/DR.32 rev.

FUROF recommendation 6

The Working Group recommends that in the short term the IOC initiate action to solicit increased contributions from Member States by means of:

(i) Trust Fund contributions;

(ii) Special Programme funding;

(iii) Regional Association funding.

The Vice-Chairman, WG/FUROF noted that this recommendation refers only to voluntary contributions from Member States. Some members noted the importance of maintaining the balance between voluntary contributions and regular funds.

The delegate of the Federal Republic of Germany noted that the existence of IOC programmes does not necessarily imply a commitment of resources by Member States. However, in the discussions at the eleventh session of the Executive Council, several delegates expressed the opinion that there must be commitment of resources by Member States to IOC programmes, and the IOC should not be so enthusiastic about programmes if these commitments are not forthcoming.

The Council approved recommendation 6 with the following amended text, for submission to the Assembly as part of resolution IOC-XI/DR.32 rev.:

"Endorses efforts by the Chairman, Vice-Chairman and Member States to solicit increased voluntary contributions from Member States and other sources for:

(i) the IOC Trust Fund;

(ii) Special Programme funding;

(iii) Regional Association funding".

FUROF recommendation 7

The Working Group recommends that in the short term the IOC arrange for a workshop in the near future on "the funding of ocean programmes" to be attended by national agencies and independent funding organizations

There was considerable discussion on the feasibility of convening such a workshop.

Many delegates pointed out that although there was wide agreement on the need to raise additional funds for the execution of the IOC programmes, it was by no means certain that a workshop of this kind would lead to this objective being met. It would be a costly undertaking and it was important to ensure that such a seminar/ workshop was properly prepared and had a good chance of success.

The representative of FAO said that FAO and IOC should not compete for funding from the same sources without prior consultation.

In principle, the Council adopted the suggestion that the First Vice-Chairman and the Secretary should carry out a feasibility study both on the workshop/seminar and also on evaluation of the ways and means of obtaining increased funding for the Commission, and report to the thirteenth session of the Executive Council.

FUROF recommendation 8

The Working Group recommends that in the short term the IOC include funding implications in all aspects of negotiations on possible changes to the IOC structure

Several delegations believed this recommendation was unnecessary, particularly in view of the fact that FUROF recommendations 2 and 4 which imply the needs expressed in recommendation 8 were not approved. After considering the apparent confounding of structural changes with administrative changes, this recommendation was not approved by the Council.

FUROF recommendation 9

The Working Group recommends that in the short term the IOC adopt procedures whereby all draft resolutions submitted to the Commission be accompanied by financial, technical and personnel implications connected with their implementation

Already adopted by the Executive Council at its eleventh session. The Council again endorsed the recommendation.

FUROF recommendation 10

The Working Group recommends that in the long term the IOC initiate and submit budget requirements in response to the identified needs of the ICSPRO agencies, and be accountable for the administrative control of any related expenditures

The representative of FAO stated that his agency had strong reservations on this recommendation. It was accepted that if the IOC received funds from another organization it was accountable to that organization; this would not be the case if IOC carried out work paid for by another organization for which that organization retained the funds.

The representative of WMO drew attention to resolution 15 (Cg-VIII) of the WMO Congress "Co-ordination of Marine Activities" (ref. document IOC-XI/9). In accordance with this resolution WMO will continue to participate in ICSPRO and to provide the IOC with such support as may be required under the ICSPRO Agreement within the limits of the budgetary provisions.

There was some discussion on the need to specify not only ICSPRO agencies but also other bodies (e.g. UNEP, UNDP) uniformly in this recommendation. Any programmes developed in response to interaction between IOC and other organizations (whether members of ICSPRO or not) must be approved by IOC before any commitments can be made. At present IOC receives no funds directly from ICSPRO agencies, but does from other bodies (e.g. UNEP).

The text of this recommendation was amended to read as follows:

"that the IOC initiate and submit budget requirements in response to the identified needs of the ICSPRO agencies and other United Nations bodies, and inform the relevant body of the work carried out and expenditures incurred".

FUROF recommendation 11

The Working Group recommends that the Chairman continue having discussions with the United Nations Agencies of ICSPRO in order to formulate closer working relationships with the Member Agencies of ICSPRO as a whole and where necessary to negotiate working relationship agreements

Already adopted by the Executive Council at its eleventh session.

FUROF recommendation 12

The Working Group recommends that Unesco and the other United Nations agencies members of ICSPRO review the ICSPRO agreement to determine its adequacy in the light of the proposed new role of the Commission

The Secretary stated that, in his view, renegotiation of the ICSPRO agreement would be dangerous and very much to the disadvantage of IOC. The representatives of Unesco and the United Nations both stated that they were in agreement with the Secretary IOC and were satisfied with the agreement as it now stands. The representative of the United Nations, referring back to recommendation 11, expressed his organization's willingness to collaborate fully with the Chairman in his discussions.

Some delegates felt that as long as there was no funding issue, this recommendation was not vital. This was accepted, and recommendation 12 was not approved.

FUROF recommendation 13

The Working Group recommends that the Executive Council consider the various studies on the marine science programme of the IOC completed and under way, and decides that additional intersessional activities are required prior to the eleventh session of the Assembly, in particular:

(a) whether the paper "Future Directions for the IOC's Marine Science Programme" should be further circulated for comment to enable it to be prepared as a working document for the Assembly;

(b) the need to examine the Commission's new role in promoting and facilitating marine science programmes, especially in view of the changes that are emerging in the new regime for the oceans;

(c) the need to complete for special consideration the study "Identification of Programmes of Greatest Benefit to Developing Countries", recognizing the importance of stronger participation by these countries in the Commission's programmes;

(d) the need to offer assistance in the preparations for the United Nations Conference on New and Renewable Sources of Energy, as it relates to the ocean environment.

It became clear that the proposed future directions of the IOC's programme would require a much increased interaction between the IOC, its advisory bodies and the ICSPRO agencies. The transfer of technology is now, de facto, a part of each programme. The qualification of the Commission's Ocean Science programme by the term marine scientific research was generally considered unnecessary and possibly misleading. The inclusion of transfer and technology under Ocean Services, instead of, for example, under TEMA, was questioned. And there was a view that the whole relationship between Ocean Science and Ocean Services would benefit from further study in the light of the needs of the developing countries.

It was noted that much work had already been carried out in response to this recommendation:

(i) the paper "Future Directions for the IOC's Marine Science Programme" (document IOC/WG-FUROF-II/12 rev. 2) has been replaced by a new document "The Purpose and Functions of the Intergovernmental Oceanographic Commission and Directions for its Future Programme" (document IOC/EC-VII/7) which has been placed before the Council at this session;

(ii) a document "Report of the Task Team on the Identification of Programmes of Greatest Benefit to Developing Countries of the IOC" (document IOC/WG-FUROF-II/16 Add.), has been prepared by a small task team and its content taken into account in the preparation of document IOC/EC-VII/7;

(iii) assistance has been offered in the preparations for the United Nations Conference on New and Renewable Sources of Energy and the Commission has been invited to host the first session of the Ocean Energy Panel. This is now scheduled to be held in Unesco House, 5-9 November 1979.

The delegate of Canada expressed his general satisfaction on the two documents IOC/EC-XII/7 and IOC/WG-FUROF-II/16 Add., but he noted that resolution IOC-XI/DR.38 did not reflect the real needs of the developing countries for research on living and non-renewable resources. The draft resolution was amended to take these points into account and resolution IOC-XI/DR.38 rev. 2 was submitted to the Assembly for further consideration.

FUROF recommendation 14

The Working Group recommends that the Executive Council at its eleventh session approve the revised Assembly and Executive Council session schedule as presented by the Secretary

Already approved by the Executive Council at its eleventh session. The recommendation has already been implemented.

FUROF recommendations 15, 16 and 17

The Working Group recommends that:

the Assembly consider the scientific problems and their priorities in the light of IOC objectives, bearing in mind the general strategy of international oceanographic investigations;

the Executive Council should approve the programme and implementation proposals of the Commission's activities;

each subsidiary body and regional secretariat must accept the responsibility of preparing the plans for, and supervising the implementation of, its programme.

Approved without discussion - to be incorporated in the IOC Manual.

FUROF recommendation 18

The Working Group recommends that:

(a) the Secretary improve the IOC system of documentation, taking into account the study undertaken by the FUROF Working Group and update the pertinent sections of the IOC Manual;

(b) an Executive Summary be prepared by the Chairman of each official IOC meeting, with the assistance of the Secretariat.

Already adopted by the Executive Council at its eleventh session.

ANNEX VI

REPORT OF A TASK TEAM

TO DEVELOP GUIDELINES FOR THE COMMISSION
REGARDING THE PROGRAMMES OF THE
DIVISION OF MARINE SCIENCES OF UNESCO

1. *TERMS OF REFERENCE*

At their eleventh session in Mexico City, 26 February to 3 March 1979, the Executive Council of IOC decided to establish an *ad hoc* Task Team "to develop guidelines for procedures whereby the Commission could carry out its function *to make recommendations and provide technical guidance as to the formulation and execution of the marine science programmes of the United Nations Educational, Scientific and Cultural Organization* (IOC Statutes Article 2(h))" (Reference 5).

2. *THE RESPECTIVE ROLES OF IOC AND UNESCO*

Before considering the interaction between the Commission and the Unesco Division of Marine Sciences, it is necessary to identify their respective roles, and the extent to which they do have common ground.

In Section 5 of the IOC Manual Part I (Reference 9) the respective functions of the two organizations in relation to Training, Education and Mutual Assistance in the marine sciences is defined concisely -

> "The IOC is principally a co-ordinating and advisory unit, while the Division of Marine Sciences is principally an operative one".

The regular programme of IOC divides broadly into the four activities: Secretariat Services; Ocean Science (i.e. Marine Scientific Research); Ocean Services, including transfer of knowledge and technology; Training, Education and Mutual Assistance in the marine sciences (TEMA).

The report of the Chief, Division of Marine Sciences to IOC/EC-XI (Reference 4) indicates that the Division conducts a number of programmes related to these IOC activities. His regular programme is divided into three parts:

(a) activities carried out in co-operation with, or in support of, the Commission;

(b) activities in promoting marine science which broadly are covered by IOC resolutions and, in due course, benefit IOC;

(c) activities which serve marine science needs of Unesco Member States that are not covered in IOC's programme.

The regular programme budget is prepared by the Division's Secretariat to implement plans and funding allocations which have been approved by the Unesco General Conference. The greater part of it, some two-thirds, is related to IOC's *general objectives* - about one-quarter directly in co-operation with IOC's *activities*. About one-third of the regular programme budget is concerned with matters outside IOC's immediate concern.

In addition, Unesco has been entrusted with the execution of national development projects in marine science and the Division provides technical and intellectual back-up to other Divisions associated with the daily execution of these projects.

In his memorandum (Reference 6) of 25 June 1979, the Chief of the Division recognizes "that the long-term objectives of the two programmes (IOC and the Division) are identical" but points to differences in the short- and medium-term objectives, namely that a principal function of the IOC is to "develop, recommend and coordinate international programmes for the scientific investigation of the oceans and related services which call for action by its members". The Division's principal function, on the other hand, he identifies as "to stimulate and assist study, research and training of research personnel in marine sciences and to assist and strengthen national and regional research and training institutions".

We accept that these functions perhaps inevitably lead to a somewhat different approach but, since the long-term objectives are the same, it only serves to emphasize the need for the closest possible integration. Both programmes have many areas in common, in the provision of general services, training and education and so on and, indeed, the only major divergence in objective that is apparent to us, is the emphasis on the oceanic regime in the IOC programmes and on the coastal regime in Unesco's own marine science programme. There is obviously a multiplicity of factors which bring this about, including the two different sources of motivation for the Division's programme, one arising from the direct response of the Director-General to specific requests from the Member States of Unesco and the other arising from the deliberations of the IOC Assembly.

Nevertheless, it appears from the proposals on the future role of IOC (Reference 10), that there will be an increasing convergence of interest with the Unesco programmes and, indeed, with those of the other ICSPRO agencies.

3. *INTERACTION BETWEEN THE IOC AND UNESCO*

It is clear that, if the main operative role with respect to TEMA lies with the Division of Marine Science, the IOC has a dependence on the Division (and also other ICSPRO agencies) to implement the needs of its Member States, and thus the best possible communications system must exist if the relationship is to be effective. Inevitably there will be divided loyalties and a need to establish priorities and whichever means of communication is adopted the system must be geared to taking account of these.

In the Approved Programme and Budget for 1979-1980 (Reference 3) it is stated that "the Commission makes recommendations and provides technical guidance on the formulation and execution of the marine science programmes of the Division of Marine Sciences" and further that "the Division also acts as an operational arm of the Commission in the field of training and education". There does not at present, however, appear to be an adequate mechanism to effect this. Nor is it apparent to us that the Division of Marine Sciences owes any formal allegiance to the IOC since their programme is that budgeted for and approved by the Unesco General Conference (Reference 3).

4. *COMMUNICATION*

IOC Programmes

There seems to be a need for IOC to identify more clearly areas in which they consider Unesco could best lend support to their activities. We have considered a number of alternatives but consider that this could be achieved best by IOC inviting

its subsidiary bodies to consider specific ways in which Unesco could assist or complement their particular programmes. The TEMA co-ordinators of these subsidiary bodies would clearly play a major role in this process. The Executive Council would then be in a position to analyse the various proposals, assign priorities and prepare suggestions for Unesco to consider.

In the interest of establishing an adequate feedback in communication, Unesco should be invited to include in its regular reports to the Executive Council its response to these suggestions, indicating what action, if any, it had been possible to implement. This would ensure both that Unesco was aware of IOC's needs and that IOC Member States were aware of how far Unesco had been able to respond to their needs. The Executive Council should also be obliged to keep Unesco informed of its *new plans* which might generate new requests to Unesco.

Unesco Programmes

Likewise there seems to be a need for IOC to be kept informed of Unesco's activities in marine science and we recommend that this should be done formally through regular reports on all of its programmes to meetings of the Assembly, the Executive Council and appropriate subsidiary bodies.

At the same time we feel there is a need for IOC to be kept informed on the *new plans* of Unesco, since these may to some degree affect the plans of IOC and may elicit a useful feedback to Unesco. The draft programme of the Division could be made available to each IOC Assembly for examination and comment. The Commission should then be able to transmit its comments on the draft programme to the Director-General and General Conference of Unesco so that they could be considered during the finalization of the Unesco programme.

While we propose the foregoing as formal channels of communication, we are also conscious of the problems of time schedules and we feel it is worth stressing the desirability of engendering as much informal contact at Secretariat level so that the staff of each organization is fully informed of the activities of its partner.

We feel it is desirable not only to recommend a plan of co-operation, but also to focus it on concrete action and thus we propose that there should be an exchange of formal views on the 1981-1983 marine science programmes and the mechanism for doing this should be discussed at the IOC Assembly.

In relation to the commitment the Commission has to provide "technical guidance on the formulation and execution of the marine science programmes" of the Division (Reference 3, paragraph 2439) it is our view that the needs could be so varied and call for such diverse expertise that the routeing of such advice would best be organized through the IOC Secretariat. The Secretariat is in the best position to assess the content of the guidance required and refer it to the appropriate subsidiary or advisory body, or experts in that field.

5. *CRITERIA FOR ESTABLISHING PRIORITIES*

At the eleventh session of the Executive Council, it was agreed that IOC should recommend Unesco to:

> "Utilize as a key criterion in the selection, definition, planning and conduct of its programmes, the applicability of these programmes to assisting developing countries to participate more effectively in the IOC's scientific research and scientific services programmes".

We believe this is an important criterion since there is a need both to improve the competence of individual scientists and institutions to participate effectively in IOC programmes, a need to improve the ability of institutions to support IOC research projects and a need to assist countries both at institutional and governmental level to develop national programmes in support of IOC objectives.

It is imperative that there should be closer co-operation between Unesco and IOC on the TEMA programme - a point which comes out clearly in the paper on the "Purpose and Functions of the IOC and Directions for its Future Programme (IOC/EC-XI/7/para. 6.1 iii) (Reference 10).

6. *FUTURE ACTIVITIES*

Clearly as the future role and functions of IOC evolve and the final results of the United Nations Conference on the Law of the Sea emerge, it will become necessary to review the situation and we suggest that IOC should keep these arrangements under scrutiny so that they can be revised as and when the need becomes apparent.

APPENDIX 1

REFERENCES

The Task Team had before them the following papers:

1. IOC programme of work and financial requirements presented to the eleventh session of the Executive Council (IOC/EC-XI/8)

2. IOC programme and budget forecast 1981/182 (IOC/BUPLAN-1/2 rev. 3)

3. Approved Programme and Budget for 1979-1980, Part II, Chapter 2, Objective 7.4 "Ocean and Coastal Marine Systems", para. 2478

4. Report of the Division of Marine Sciences of Unesco to the eleventh session of the Executive Council (MARINF/20)

5. Summary report of the eleventh session of the Executive Council (IOC/EC-XI/3)

6. Memorandum from the Chief, Division of Marine Sciences, to the Secretary, IOC, on "IOC Recommendations on Unesco's Marine Science Programme (SC/9/IOC/DCK/CWS)"

7. Various letters between the United States representative to IOC/EC and Unesco and IOC, and between Mr. Brown and Dr. Jacovella

8. A summary (18 C/86) of the "Status and Responsibilities of the Intergovernmental Oceanographic Commission"

9. IOC Manual, Part I, Section 5

10. The purpose and functions of the Intergovernmental Oceanographic Commission and directions for its future programme (IOC/EC-XII/7)

APPENDIX 2

MEMBERSHIP OF TASK TEAM

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ANNEX VII

ANTON BRUUN MEMORIAL LECTURES 1979 (abstracts)

Thursday, 1 November 1979

MARINE ENVIRONMENT AND RESOURCES IN THE OCEAN

(Chairman: Dr. Neil J. Campbell, First Vice-Chairman IOC)

Professor Dr. E. Seibold (Germany, Federal Republic of)	Non-Living Marine Resources
Dr. Kenzo Takano (Japan)	Ocean Energy
Dr. J.S. Godfrey (Australia) (paper presented by Mr. D. Rochford)	Short-term Climatic Change: A Physical Oceanographer's Point of View
Dr. D.H. Cushing (United Kingdom)	Production in the Central Gyres of the Pacific

NON-LIVING MARINE RESOURCES

by Professor Dr. Eugene Seibold
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ABSTRACT

At present, in huge areas of the ocean's seafloor, morphology, sediment cover and sub-bottom structures are poorly known.

- Much more marine research is needed, but marine research is costly.

- Mineral resources, such as muds rich in metals, manganese nodules, placer deposits, oil and gas, are concentrations of economically important materials, originating from complex physical, chemical and biological processes interacting both in space and time. Therefore most of these resources have a small areal extent.

- Consequently strategies are needed to explore them effectively.

The concepts of Seafloor Spreading and Plate Tectonics, developed during the last decade, help to eliminate unlikely areas for exploration and to concentrate research on promising ones. Oil and gas are the most important marine resources at the present time, and is likely to remain so for the next few decades. However, it is hopeless to explore at least 80 per cent of the deep sea bottom for these hydrocarbons.

Manganese nodules - and locally metal-rich muds - may be valuable in the future, when economic collecting, hoisting and processing methods are devised, when legal problems are solved and when the metal prices increase as a result of exhaustion of more favourable land deposits.

On the shallow seafloor, not only now but during former low sea level stands, mechanical action of waves and currents has concentrated sand and gravel, two important building materials which are becoming increasingly more expensive on land, especially in densely populated areas. An even higher degree of mechanical sorting is seen in placer deposits of tin, iron minerals, diamonds and heavy minerals containing titanium, zirconium and rare earths. These mineral resources are exploited in near and offshore regions, around the world. Offshore phosphorites, which could be used as a base for fertilizers, originate from chemical/mechanical concentration processes, however at present they are not economically attractive.

As a consequence:

- we should not be too optimistic about marine mineral resources until much more basic and applied research is done;

- recovering deep sea manganese nodules and deep hydrocarbon deposits are technical and financial problems even for industrialized nations during the next decade;

- coastal and shallow sea mineral resources are promising targets for research in both developing and developed countries. Receiving new rights, as foreseen by the Third United Nations Conference on the Law of the Sea, also brings new duties and responsibilities, however. Therefore developing countries should continue to co-operate with scientists from abroad and should develop their own research in suitable fields.

OCEAN ENERGY

by Dr. Kenzo Takano
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ABSTRACT

In this paper, a brief explanation is given of the energy which could be derived from waves, tides, currents and the thermal difference between the upper and deep layers of the ocean, and estimates are made of their maximum potential use. No attempt is made to assess the energy potential of mineral and other resources of the seabed or overlying water masses.

SHORT-TERM CLIMATIC CHANGE: A PHYSICAL OCEANOGRAPHER'S POINT OF VIEW

by Dr. J.S. Godfrey
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ABSTRACT

In recent years, a number of examples have been found of weather anomalies (rainfall, sea level, pressure, etc.) being correlated significantly with sea surface temperature (SST) some distance away, and a month or more earlier. If meteorologists can refine such correlations to the point where they are operationally useful climate forecast tools, then the forecast can be extended further if the SST anomaly can itself be forecast from meteorological variables. Present knowledge of the various physical mechanisms likely to cause climatically interesting SST fluctuations is reviewed, and as assessment made of the possibilities for predicting SST fluctuations on an operational basis in coming decades.

PRODUCTION IN THE CENTRAL GYRES OF THE PACIFIC

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ABSTRACT

In the deep subtropical ocean, the cholorophyll maximum lies at the bottom of the euphotic layer maintained by low levels of nutrient and irradiance. At the same time there are two to three times as much weight of animals as plants, which means that the algal reproductive rates must be fairly high under low light and low nutrients.

With material from the Climax II expedition algal reproductive rates and grazing rates were calculated. The quantity produced per day matched the quantity grazed per day in both the North and South Pacific, albeit at different levels in the two oceans. The quantity of soluble ammonium excreted per day was also estimated which again matched the quantity produced. Hence there would have been no need for immediate nutrient limitation. The estimates of algal reproductive rates were fitted to nutrient observations showing that most activity occurred well above the half saturation coefficient. The consequences of these arguments are pursued.

ANNEX/ANNEXE/ANEXO/ПРИЛОЖЕНИЕ/ملحق VIII

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Фамилии и звания, указанные в нижеприведенном списке, воспроизводятся в том виде, в каком они были представлены Секретариату соответствующими делегациями. Страны перечислены в порядке английского алфавита.

أدرجت الأسماء والألقاب في هذه القائمة كما قدمتها للسكرتارية الوفود المعنية، ورتبت أسماء البلاد بحسب الترتيب الهجائي الانجليزي .

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ANNEX IX

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ACMRR (FAO)	Advisory Committee on Marine Resources Research
AIA	Atlantic-Iberian-African (region)
ALECSO	Arab Educational, Cultural and Scientific Organization
ALPEX	Alpine Experiment
ASFIS (FAO/IOC/UN(OETO))	Aquatic Science and Fisheries Information System Joint FAO/IOC/UN(OETO) Panel of Experts on ASFIS
BATHY	Bathythermograph report
BIOMASS	Biological Investigation of Marine Antarctic Systems and Stocks; Integrated Programme for BIOMASS
BUPLAN (IOC)	Budget Planning
CAGE	CCCO proposed experiment in the North Atlantic
CBS (WMO)	Commission for Basic Systems
CCCO (SCOR/IOC)	Joint SCOR/IOC Committee on Climatic Changes and the Ocean
CCOP (ESCAP)	Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas
CCOP/SOPAC (ESCAP)	Committee for Co-ordination of Joint Prospecting for Mineral Resources in South Pacific Offshore Areas
CECAF (FAO)	Fishery Committee for the Eastern Central Atlantic
Cg (WMO)	WMO Congress
CIM (IOC/FAO(GFCM)/ICSEM)	Co-operative Investigations in the Mediterranean; Joint IOC/FAO(GFCM)/ICSEM International Co-ordination Group for CIM
CINCWIO (IOC)	Investigations in the North and Central Western Indian Ocean
CINECA (ICES/IOC/ FAO(CECAF))	Co-operative Investigations of the Northern Part of the Eastern Central Atlantic
CL (IOC)	Circular Letter
COST-43	European Co-operation in the field of Scientific and Technical Research - project 43

CPPS	Comisión Permanente del Pacífico Sur (Permanent Commission for the South Pacific)
CRP (WMO/WCP)	Climate Change and Variability Research Programme
CSK (IOC)	Co-operative Study of the Kuroshio and adjacent regions
DNA	Designated National Agency
DNP	Declared National Programme
DR	Draft Resolution
EC (IOC)	IOC Executive Council
EC (WMO)	WMO Executive Committee
ECOR	Engineering Committee on Oceanic Resources
ECOSOC (UN)	Economic and Social Council
EL NIÑO	(Meteorological and oceanographic phenomenon off the west coast of South America) See: ERFEN
EPOCS	Equatorial Pacific Ocean Climate Studies
ERFEN (CPPS)	Estudio Regional del Fenómeno "El Niño" (Regional study of the phenomenon known as "El Niño")
ESA	European Space Agency
ESCAP (UN)	Economic and Social Commission for Asia and the Pacific
EUROCEAN	European Oceanic Association
FAGS (ICSU)	Federation of Astronomical and Geophysical Services
FAO	Food and Agriculture Organization of the United Nations
FGGE (WMO/ICSU)	First GARP Global Experiment
FIBEX	First BIOMASS Experiment
FOY	FGGE Operational Year
FUROF (IOC)	Future Role and Functions of the Commission; Working Group on FUROF
GARP (WMO/ICSU)	Global Atmospheric Research Programme
GATE (WMO/ICSU)	GARP Atlantic Tropical Experiment
GEBCO (IOC/IHO	General Bathymetric Chart of the Oceans; Joint IOC/IHO Guiding Committee for GEBCO

GELTSPAP (IOC)	Group of Experts on Long-Term Scientific Policy and Planning
GEMSI (IOC)	GIPME Group of Experts on Methods, Standards and Intercalibration
GESAMP (IMCO/FAO/Unesco/ WMO/WHO/IAEA/UN/UNEP)	Group of Experts on the Scientific Aspects of Marine Pollution
GF-3 (IOC)	IOC General Format No. 3 (General Oceanographic Data Exchange Format)
GFCM (FAO)	General Fisheries Council for the Mediterranean
GIPME (IOC)	Global Investigation of Pollution in the Marine Environment; Working Committee for GIPME
GS (UN system)	General Service grade
GTC	Group for Technical Co-ordination
GTS (WMO/WWW)	Global Telecommunication System
IABO (IUBS)	International Association for Biological Oceanography
IBCM	International Bathymetric Chart of the Mediterranean
ICES	International Council for the Exploration of the Sea
ICG (IOC)	International Co-ordination (or Co-ordinating) Group
ICNAF	International Commission for the North-West Atlantic Fisheries See: NAFO
ICSEM	International Commission for the Scientific Exploration of the Mediterranean Sea
ICSPRO (FAO/IMCO)/ Unesco/WMO/UN)	Inter-secretariat Committee on Scientific Programmes Relating to Oceanography
ICSU	International Council of Scientific Unions
IDOE	International Decade of Ocean Exploration
IDPSS (IOC)	IGOSS Data Processing and Services System
IG/GCI	International Geological/Geophysical Cruise Inventory
IGOSS (IOC/WMO)	Integrated Global Ocean Station System; Joint IOC/WMO Working Committee for IGOSS
IHO	International Hydrographic Organization
IMCO	Inter-Governmental Maritime Consultative Organization
INDEX	Indian Ocean Experiment

INFOTERRA (UNEP)	International Referral System (formerly IRS)
IOC	Intergovernmental Oceanographic Commission
IOCARIBE	IOC Association for the Caribbean and adjacent regions
IOC-VAP	IOC Voluntary Assistance Programme
IODE (IOC)	International Oceanographic Data Exchange; IOC Working Committee on IODE
IOS	IGOSS Observing System
IPFC (FAO)	Indo-Pacific Fisheries Council
IPM	Informal Planning Meeting
ITIC	International Tsunami Information Center
ITSU (IOC)	IOC Tsunami Warning System in the Pacific; International Co-ordination Group for the Tsunami Warning System in the Pacific
IUBS (ICSU)	International Union of Biological Sciences
JOA	Joint Oceanographic Assembly
JOC (for GARP) (WMO/ICSU)	Joint Organizing Committee for GARP
JSC (of CRP of the WCP)	Joint Scientific Committee
JWC	Joint Working Committee
JWG	Joint Working Group
LEPOR (IOC)	Long-term and Expanded Programme of Oceanic exploration and Research
MAPMOPP (IOC/WMO)	IGOSS Marine Pollution (Petroleum) Monitoring Pilot Project; IGOSS Subgroup of Experts on MAPMOPP
MARPOLMON	Marine Pollution Monitoring IGOSS Subgroup of Experts on MARPOLMON
MED-I (IOC/WMO/UNEP)	IOC/WMO/UNEP Pilot Project on Baseline Studies and Monitoring of Oil and Petroleum Hydrocarbons in Marine Waters /part of MEDPOL/
MED-VI (IOC/UNEP)	IOC/UNEP Pilot Project on Problems of Coastal Transport of Pollutants /part of MEDPOL/
MEDI (IOC)	Marine Environmental Data Information Referral System
MEDPOL (UNEP)	UNEP Co-ordinated Mediterranean Pollution Monitoring and Research Programme
MONEX	Monsoon Experiment

NAFO	North Atlantic Fisheries Organization
NODC	National Oceanographic Data Centre
NOP	National Oceanographic Programme
OAS	Organization of American States
OCE (Unesco)	Division of Marine Sciences
ODAS	Ocean Data Aquisition Systems, Aids and Devices
OETO (UN)	Ocean Economics and Technology Office
PAPA	Canadian Ocean Weather Station in the North Pacific
PIC	IGOSS Programme Information Circular
POLEX	Polar Experiment
POLYMODE (USA/USSR)	Joint US-USSR Mid-Ocean Dynamics Experiment
POMS (JOC/SCOR)	Pilot Ocean Monitoring Study
PSMSL (FAGS)	Permanent Service for Mean Sea Level
RDC	Regional Data Centre
RNODC	Responsible National Oceanographic Data Centre
ROSCOP	Report of Observations/Samples collected by Oceanographic Programmes
ROSTA (Unesco)	Regional Office of Science and Technology for Africa
RP (Unesco)	Regular Programme
SAB (IOC)	IOC Scientific Advisory Board
SCAR (ICSU)	Scientific Committee on Antarctic Research
SCOR (ICSU)	Scientific Committee on Oceanic Research
SEAFDEC	South-East Asian Fisheries Development Center
SEATAR (CCOP-IOC)	CCOP-IOC Joint Working Group on IDOE Studies on East Asia Tectonics and Resources
SOC (IOC)	Southern Oceans; Programme Group for the Southern Oceans
SOPAC	See: CCOP/SOPAC
SRB (IOC)	Scientific Review Board
SST	Sea Surface Temperature
TEMA (IOC)	Training, Education and Mutual Assistance in the marine sciences; IOC Working Committee for TEMA

TESAC	Temperature - Salinity - Currents (designator for radio message)
TF	Trust Fund
TF/MS	Trust Fund/Member States
UN	United Nations
UNCLOS (UN)	United Nations Conference on the Law of the Sea
UNCSTD	United Nations Conference on Science and Technology for Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNERG	United Nations Conference on New and Renewable Sources of Energy
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNU	United Nations University
VAP	See: IOC-VAP
WAMEX	West African Monsoon Experiment
WC (IOC)	Working Committee
WCP (WMO)	World Climate Programme
WDC	World Data Centre
WESTPAC (IOC)	Western Pacific; IOC Programme Group for the Western Pacific
WG (IOC)	Working Group
WMO	World Meteorological Organization
WWW (WMO)	World Weather Watch
XBT	Expendable Bathythermograph

RESOLUTIONS ADOPTED BY THE EXECUTIVE COUNCIL AT ITS TENTH SESSION

FAO Headquarters, Rome, 19-23 June 1978

Resolution No.	Title
EC-X.1	Participation by scientists from developing countries in projects of oceanographic investigations
EC-X.2	Membership of the Scientific Advisory Board
EC-X.3	Marine scientific research activities in the Mediterranean
EC-X.4	Investigation of processes in the major ocean areas
EC-X.5	Ship operations during the First GARP Global Experiment (FGGE)
EC-X.6	Management of oceanographic data collected during the year of the First GARP Global Experiment (FGGE)
EC-X.7	Global Investigation of Pollution in the Marine Environment (GIPME)
EC-X.8	General Bathymetric Chart of the Oceans (GEBCO)
EC-X.9	Central Editorial Board for the Geological-Geophysical Atlases of the Atlantic and Pacific Oceans
EC-X.10	Marine environment and resources in the North and Central Western Indian Ocean
EC-X.11	Integrated Global Ocean Station System (IGOSS)
EC-X.12	IOC/WMO Seminar/Workshop on Oceanographic Products and the IGOSS Data Processing and Services System (IDPSS)
EC-X.13	The status of International Oceanographic Data Exchange
EC-X.14	Tsunami Warning System in the Pacific (ITSU)
EC-X.15	Future Role and Functions of the Commission
EC-X.16	Improvement in the effectiveness of the Commission and strengthening of the financial support for Scientific and Technical Projects on the Investigation of the World Ocean

RESOLUTION EC-X.1

Participation by scientists from developing countries in projects of oceanographic investigations

The Executive Council,

Recalling resolution VIII-25 B Participation in Oceanographic Cruises,

Noting also the wish of Member States to ensure that developing countries should be enabled to participate, not only in the collecting of oceanographic data and the execution of projects of oceanographic investigations but also in their preliminary planning and in the analysis of results,

Instructs the Secretary to make every effort to ensure that adequate funds are provided, from whatever sources may be available, to make it possible for scientists from developing countries to participate fully in projects of oceanographic investigations which they are invited to join.

RESOLUTION EC-X.2

Membership of the Scientific Advisory Board

The Executive Council,

Recalling the decision of the Assembly at its tenth session (document SC/MD/60, item 13.1), to increase the membership of the Scientific Advisory Board "to a maximum of 15 members, one of whom would be the Vice-Chairman for Science",

Noting the action taken by the Secretary to ascertain whether existing members of the Board choose to continue to serve on the Board for the present biennium,

Noting further that the outcome of these decisions was that there were four vacancies in the membership of the Board and that appointments to these vacancies have been made on an interim basis by the Chairman of the Commission, in consultation with the Vice-Chairmen,

Confirms the following appointments of new members to the Scientific Advisory Board: Dr. A. Al-Refai Bayoumi (Egypt); Professor L.R. Martins (Brazil); Professor J.M. Pêres (France); Mr. R.N. Richmond (Fiji).

RESOLUTION EC-X.3

Marine scientific research activities in the Mediterranean

The Executive Council,

Recognizing that the implementation of future programmes of scientific research in the Mediterranean Sea is of considerable importance to IOC Member States and that widely acceptable ways and means of strengthening such programmes need to be found,

Noting once again, as mentioned in resolution X-9, the amount and the considerable importance of national marine science activities that have been carried out in the region according to the programme of the Co-operative Investigations in the Mediterranean (CIM),

Recalling the comments made by the Scientific Advisory Board regarding CIM in its report to the tenth session of the IOC Assembly (document IOC/SAB-II/3),

Having been informed of the outcome of the fifth meeting of the ad hoc Group of Experts on the International Bathymetric Chart of the Mediterranean,

Taking into account the developments that have taken place in recent years in the region under the auspices of the United Nations Environment Programme (UNEP),

Recalling the fact that IOC is responsible for co-ordinating certain projects under UNEP's Mediterranean Action Plan (MED-I jointly with UNEP and WMO, and MED-VI jointly with UNEP),

Noting however that these activities only cover matters concerning the environment, including marine pollution monitoring, and that the interest of IOC Member States are considerably wider in character, and

Considering that the existing mechanism for co-ordination of scientific research programmes in the region - the Co-operative Investigations in the Mediterranean - of which IOC is a co-sponsor with the General Fisheries Council of the Mediterranean (of FAO) and the International Commission for the Scientific Exploration of the Mediterranean Sea, has not fulfilled the purpose for which it was created,

Decides in principle and subject to the concurrence of the other two co-sponsoring bodies, that the International Co-ordination Group (ICG) and the Group for Technical Co-ordination (GTC) of CIM should be abolished;

Decides further, however, since not all Member States of CIM are members of the Executive Council, to keep the ICG and GTC of CIM in abeyance until the eleventh session of the Assembly;

Instructs the Secretary: (i) to hold discussions with interested Member States to obtain their views as to which are the most important scientific problems in the Mediterranean, which of these require the support and assistance of IOC and at what level of priority, and what type of organizational structure, if any, should be established within the IOC to deal with these needs; and (ii) to report on these discussions to the Assembly at its eleventh session;

Decides also to continue to support the Operational Unit of CIM in order to provide supervision for existing CIM projects, in particular, the International Bathymetric Chart of the Mediterranean, with the understanding that this Unit will report to, and receive guidance from, the Executive Council through the Secretary with respect to its IOC-related responsibilities;

Instructs the Secretary to provide the necessary administrative and financial support for the Operational Unit and the above-mentioned activities;

Invites Member tates to continue: (i) to provide necessary financial support for CIM-related data exchange activities, especially the CIM Regional Data Centre; and (ii) to submit data collected under existing CIM projects to the CIM Regional Data Centre;

Reiterates the intention of the Commission to accept responsibility for appropriate projects under the Mediterranean Action Plan and to collaborate closely with UNEP on these activities.

RESOLUTION EC-X.4

Investigation of processes in the major ocean areas

The Executive Council,

Having considered the proposal of the USSR on the implementation of a long-term scientific and operational programme of research on processes in the major ocean areas (document IOC/EC-X/21), and its importance to logical development of investigations and observations carried out within the framework of GARP,

Recognizes that the implementation of such a programme, if adopted, would become a valuable new step in the study of ocean processes, which is important in the development of continental and ocean weather forecasting and also the forecasting of oceanic conditions;

Requests SCOR to examine the proposal and to formulate scientific requirements for such a programme;

Also requests the Scientific Advisory Board to examine ways and means by which the scientific requirements identified by SCOR should be implemented and to make proposals on its implementation, in consultation and in co-operation with WMO, and to submit its proposals as soon as possible.

RESOLUTION EC-X.5

Ship operations during the First GARP Global Experiment (FGGE)

The Executive Council,

Recalling that the Assembly, by resolution X-5, invited Member States to respond favourably to the specific invitation to support the Global Experiment and in particular to facilitate the entry and passage of ships participating in the Global Experiment into ports and waters under their national jurisdiction,

Noting that many of the ships contributing to the Global Experiment are planning to make measurements essential to various oceanographic programmes of the Global Experiment in waters under national jurisdiction,

Further noting that many ships participating in the Global Experiment will require the use of foreign ports for on- and off-loading of equipment and personnel, refuelling and other uses of port and customs facilities,

Reminds Member States that the First GARP Global Experiment (FGGE) is a global programme of major significance to oceanographic science;

Urges Member States to give their full co-operation to: (i) ship operations during the Global Experiment so as to facilitate the movements of those ships; and (ii) the provision of port facilities;

Instructs the Secretary, in conjunction with WMO:

(a) to co-ordinate where necessary the oceanographic programme of the Global Experiment addressed to, or adopted by, the Commission;

(b) to draw, in co-operation with Member States providing ships for the Global Experiment, the attention of concerned coastal Member States to the ship operations contemplated; and

(c) to take all necessary measures to facilitate the full and timely transmittal of BATHY and TESAC data, into the Global Telecommunication System (GTS) and the World Weather Watch (WWW), collected by ships and buoys operating in the Global Experiment, at least during the special observation periods.

RESOLUTION EC-X.6

Management of oceanographic data collected during the year of the First GARP Global Experiment (FGGE)

The Executive Council,

Recalling that the Assembly, by resolution X-5, decided that the Oceanographic Programme during the First GARP Global Experiment should be given high priority in the programmes of the Commission and accepted the offers of two Member States, Federal Republic of Germany and the United States of America, to establish two different types of oceanographic data centres for the Global Experiment,

Also recalling that the Executive Council, by resolution EC-VIII.2, approved the programme entitled "Oceanographic Components of the Global Atmospheric Research Programme (GARP)" (IOC Technical Series 17), in which it is agreed that oceanography and related data management systems will be an important element of future climate programmes,

Recognizes that the data centres established by the United States of America and the Federal Republic of Germany are important for marine scientists participating in GARP;

Takes note that the data management concept for this activity as outlined in the document "Data management for oceanographic data collected in the world oceans during the year December 1978 to 30 November 1979 - An IOC-IODE programme" (reference: document IOC/EC-X/19);

Requests the Working Committee on IODE to give high priority to this activity paying particular attention to those aspects which may need advice from SCOR and other interested bodies;

Urges Member States to contribute to this activity by supplying data and data inventory information, in accordance with the Manual on International Oceanographic Data Exchange(1);

Encourages Member States to consider direct participation in the oceanographic data management planning and, if possible, establish additional RNODCs to work closely with the RNODC located in the United States of America so as to achieve international co-ordination of certain portions of the activity;

(1) Now in its fourth edition (IOC Manuals and Guides No. 9).

Invites attention of participants in the Global Atmospheric Research Programme of WMO and ICSU to the important potential offered by the resulting inventory and data bases.

RESOLUTION EC-X.7

Global Investigation of Pollution in the Marine Environment (GIPME)

The Executive Council,

Recalling the resolutions of the tenth session of the IOC Assembly (resolutions X-7 and X-8) and of the recommendations of the second session of the Working Committee for GIPME,

Bearing in mind that the problems of TEMA must be more widely reflected in the programmes for studying pollution in the marine environment,

Notes the need for broadening the participation of IOC Member States in the work of the Working Committee for GIPME, bearing in mind the interests of the developing countries and the global character of the problems of marine pollution;

Confirms the need to avoid the labelling of information on the state of the marine environment as confidential, since such a designation makes it impossible for World Data Centres to function as components of the general system for Global Investigation of Pollution in the Marine Environment;

Instructs the Secretary IOC, together with the Chairman of the Working Committee for GIPME, to report to the eleventh session of the Executive Council as to how the IOC could collaborate with various international organizations investigating marine pollution;

Calls the attention of the Working Committee for GIPME to the need for stepping up efforts to draw up and execute specific projects on the study of pollution under the aegis of IOC and in close co-operation with other interested international organizations, particularly WMO and UNEP;

Instructs the Working Committee for GIPME to bear in mind the need to work out, jointly with the Working Committee on IODE, methods for the exchange of data on pollution in the marine environment;

Further instructs the Working Committee for GIPME, in co-operation with the Working Committee for TEMA, to determine the training programmes that are required to allow Member States to participate meaningfully in GIPME programmes.

RESOLUTION EC-X.8

General Bathymetric Chart of the Oceans (GEBCO)

The Executive Council,

Having been informed that the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans (GEBCO) held its fifth session in the Headquarters of the Canadian Hydrographic Service, Ottawa, 24-26 April 1978,

Expresses its appreciation to the Government of Canada for its courtesy and generosity in hosting the session;

Approves the Summary Report of the session (document IOC-IHO/GEBCO-V/3);

Invites the International Hydrographic Organization to investigate the feasibility of continued updating of the 1/250,000 plotting sheet series prepared for the International Bathymetric Chart of the Mediterranean;

Having received a request from the United Nations Conference on the Law of the Sea to carry out two tasks:

(i) to show the effects of the application of a USSR proposal on the outer limit of the continental shelf on the map already prepared for the Conference (document A/CONF.62/C.2/L.98/Add.1), and

(ii) to study the financial and other implications, including in particular the time required, of preparing large-scale maps (1:10 million) of the Atlantic, Pacific, Indian and Arctic Oceans, showing the effects of the three different formulae for defining the outer limit of the continental shelf (as presented to the United Nations Conference on the Law of the Sea in documents A/CONF.62/C.2/L.98 and A/CONF.62/SR.106),

Recalling resolution VIII-35 in which the Assembly at its eighth session confirmed "that the Commission is prepared, in the frame of its competence, to respond to all possible requests for scientific and technological advice from the United Nations Conference on the Law of the Sea",

Accepts the two tasks (noted above), as transmitted to the Commission by the Special Representative of the Secretary-General of the United Nations to the Conference;

Instructs the Secretary to arrange for these two tasks to be undertaken with the least possible delay, working in close co-operation with the International Hydrographic Organization;

Requests the United Nations through its Secretariat for the Third United Nations Conference on the Law of the Sea, to assist with the financing of these tasks.

RESOLUTION EC-X.9

CENTRAL EDITORIAL BOARD FOR THE GEOLOGICAL-GEOPHYSICAL ATLASES OF THE ATLANTIC AND PACIFIC OCEANS

The Executive Council,

Recalling resolutions EC-VII.16 and X-14 on the preparation of Geological-Geophysical Atlases of the Atlantic and the Pacific Oceans, and the readiness of the Academy of Sciences of the USSR to take upon itself the general organization, preparation and publication of these Atlases,

Noting that the above-mentioned Atlases are of exceptional scientific and practical value,

Recognizing the expedience of holding a first preparatory meeting of the Central Editorial Board before the end of 1978,

Approves the action so far taken by the Secretary in the preparation of the nomination of an Editorial Board, and instructs him to complete the nomination at an early date;

Requests the Chairman, in consultation with the Vice-Chairmen, to appoint a Central Editorial Board for the Geological-Geophysical Atlases of the Atlantic and Pacific Oceans, based on the nomination prepared by the Secretary;

Instructs the Secretary IOC to take the necessary measures for the financing of the work for the budgetary periods 1979-1980 and 1981-1982, in consultation with the Chairman of the Commission and Chairman (Chief Editor) of the above-mentioned Board.

RESOLUTION EC-X.10

Marine environment and resources in the North and Central Western Indian Ocean

The Executive Council,

Being convinced that the scientific work connected with the International Indian Ocean Expedition (IIOE) has left several important questions open,

Recognizing new research activities in some parts of the area related to special problems, e.g. MONEX and INDEX(1),

Recognizing in particular the intention of several East African coastal states to conduct an oceanographic research programme within the so-called CINCWIO(1),

Emphasizing that IOC programmes should always have a strong TEMA(1) component,

(1) MONEX - Monsoon Experiment
INDEX - Indian Ocean Experiment
CINCWIO - Co-operative Investigation in the North and Central Western Indian Ocean
TEMA - Training, Education and Mutual Assistance in the marine sciences.

Welcomes the outline of a scientific programme submitted by the Federal Republic of Germany (reference: document IOC/EC-X/20) which proposes investigations of the marine environment and resources in the North-Western Indian Ocean, and of which CINCWIO may be regarded as an important near-shore component;

Requests SCOR and ACMRR to identify outstanding scientific problems in the above area which might form the foundation of a research programme to be developed jointly by participating Member States, and to report to the Assembly at its eleventh session;

Requests further the Working Committee for TEMA to identify the training needs of the countries of the CINCWIO region and to initiate pertinent training programmes before the co-operative investigation becomes operational;

Recommends that an adequate co-ordinating mechanism be established by the IOC Assembly at its eleventh session.

RESOLUTION EC-X.11

Integrated Global Ocean Station System (IGOSS)

The Executive Council,

Noting the great importance of the prompt receipt of oceanographic information to ensure its practical and scientific use,

Recognizing that the BATHY and TESAC projects are progressing satisfactorily and allow essential data to be obtained,

Noting with satisfaction that the formation of a Joint IOC/WMO Working Committee for IGOSS will facilitate this task by making it possible to use WMO capabilities,

Bearing in mind the need for increasing and improving the means for collecting oceanographic information,

Considers it necessary to include in the IGOSS programme - as an experimental phase in the first and second FGGE special observing periods (January/February and May/June 1979) - and making of observations by means of anchored and drifting buoys, the collection of oceanographic data and information by these means being regarded as an IGOSS subproject;

Instructs the Secretary IOC and the Chairman of the Joint IOC/WMO Working Committee for IGOSS to prepare concrete recommendations on the continuation of these observations on a permanent basis following the completion of FGGE, taking into account any changes that may be necessary due to changed conditions, and to submit them to the eleventh session of the Executive Council;

Calls on Member States to take the necessary action to increase the exchange of IGOSS data gathered within the framework of existing projects as well as projects scheduled for future implementation.

RESOLUTION EC-X.12

IOC/WMO Seminar/Workshop on Oceanographic Products and the IGOSS Data Processing and Services System (IDPSS)

The Executive Council,

Recalling the proposal of the third session of the Joint IOC/WMO Planning Group for IGOSS, contained in the summary report of the meeting, which was approved by the Executive Council at its seventh session (resolution EC-VII.10),

Recognizing the importance of such a seminar/workshop as a form for discussion of present and future requirements for oceanographic products by various marine users, including the scientific community, with a view to establishing a sound basis for further development of the IGOSS Data Processing and Services System,

Recognizing also that the seminar/workshop will provide an opportunity for an exchange of knowledge and experience between specialists on oceanographic product formulation, and methods used in their preparation,

Believing that such an approach will encourage participation of Member States, particularly developing countries, in the IGOSS programme,

Noting that the seminar/workshop will be convened in Moscow from 2 to 11 April 1979,

Noting further that the first session of the Joint IOC/WMO Organizing Committee for the seminar/workshop, held 1-3 March 1978 in Hamburg, Federal Republic of Germany, taking into account the proposals and comments of the Joint IOC/WMO Meetings of Governmental Experts (August 1977 and March 1978), formulated the following objectives for the seminar/workshop:

1. identification of applications and benefits of existing and possible future products by various marine users,

2. review and evaluation of existing oceanographic products,

3. review of methods and techniques being used for preparation of oceanographic products,

4. identification of data processing needs, including quality control and standardization of methods and techniques of processing,

5. identification of data base required for the preparation of the oceanographic products as well as means to ensure that data base,

6. identification of types of guides and supporting documentation for IDPPS,

Expresses appreciation to the State Committee for Hydrometeorology and Natural Environment Control of the USSR for offering to host the seminar/workshop;

Instructs the Secretary to make the necessary administrative and financial arrangements, in co-operation with WMO, for the seminar/workshop and to provide, upon request and within the limits of available funds, financial support for a number of experts from developing countries to participate in the seminar/workshop;

Urges Member States to take part in the seminar/workshop by sending experts and providing contributions to the topics to be discussed at the seminar/workshop;

Joins with WMO in inviting FAO, IMCO, UNEP, ICES, SCOR and other interested organizations to participate in the seminar/workshop.

RESOLUTION EC-X.13

The status of International Oceanographic Data Exchange

The Executive Council,

Noting with satisfaction the growing volume of oceanographic data being exchanged internationally,

Recognizing the major contribution of the Working Committee on IODE to this activity,

Calls on Member States to handle their oceanographic data, ROSCOP and inventory forms, or submit them to World Data Centres, in accordance with the provisions of the Manual on International Oceanographic Data Exchange(1);

Instructs the Working Committee on IODE to examine the question of the status of international oceanographic data exchange and to submit a report to the eleventh session of the Executive Council.

RESOLUTION EC-X.14

Tsunami Warning System in the Pacific (ITSU)

The Executive Council,

Having received the report of the sixth session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, held in Manila, Philippines, 20-25 February 1978,

Approves the report and the recommendations contained therein;

Urges Member States to accelerate the preparation and widest dissemination of tsunami educational material for the general public;

Instructs the Secretary to investigate means of obtaining additional financial support for the preparation and dissemination of such material.

(1) Now in its fourth edition (IOC Manuals and Guides No. 9).

RESOLUTION EC-X.15

Future Role and Functions of the Commission

The Executive Council,

Having been informed by the Chairman of the Working Group on the Future Role and Functions of the Commission that a Task Team has been established by the Working Group to carry out a study on the ways in which the Commission might:

1. promote, co-ordinate and/or conduct programmes of scientific research, scientific services and training, education and mutual assistance; and

2. advise other United Nations activities and also IOC Member States on matters within the Commission's competence,

Invites the Advisory Bodies of the Commission to provide appropriate input to the work of this Task Team.

RESOLUTION EC-X.16

Improvement in the Effectiveness of the Commission and Strengthening of the Financial Support for Scientific and Technical Projects on the Investigation of the World Ocean

The Executive Council,

Bearing in mind the role and significance of the Intergovernmental Oceanographic Commission in the co-ordination of the work of Member States in the investigation of the world ocean,

Taking into account the fact that a number of large international projects have been carried out under the aegis of IOC since its inception, and that a number of programmes which are of great importance both for developed and developing countries are at present being conducted by the Commission,

Considering that the future role of the IOC as a specialized organization within the United Nations system should be strengthened,

Considers it necessary that the Commission increase its activity in the implementation and co-ordination of scientific and technical projects on the investigation of the world ocean, that are of interest to IOC Member States and to international organizations;

Urges Member States to brief their delegations to the General Conference of Unesco to promote a significant increase in financial support to the IOC (Unesco Objective 7.4) by appropriate reallocation of the Regular Programme budget;

Instructs the Chairman, on behalf of the Commission, to address an appropriate request to the Director-General of Unesco for his consideration.

RESOLUTIONS ADOPTED BY THE EXECUTIVE COUNCIL
AT ITS ELEVENTH SESSION

Mexico City, 28 February-3 March 1979

Resolution No.	Title
EC-XI.1	Global Atmospheric Research Programme (FGGE)
EC-XI.2	Oceanographic Aspects of the First GARP Global Experiment (FGGE)
EC-XI.3	GATE Oceanographic Atlas - Volume I
EC-XI.4	The IOC Association for the Caribbean and adjacent regions (IOCARIBE)
EC-XI.5	IOCARIBE Regional Secretariat Support
EC-XI.6	IOC Trust Fund: Contribution of the Government of Venezuela
EC-XI.7	Western Pacific (WESTPAC)
EC-XI.8	The Phenomenon known as "El Niño"
EC-XI.9	International Bathymetric Chart of the Mediterranean (IBCM)
EC-XI.10	Integrated Global Ocean Station System (IGOSS)
EC-XI.11	Joint IOC/WMO Working Committee for IGOSS
EC-XI.12	Continuation of Drifting Buoy Observations within IGOSS after the First GARP Global Experiment (FGGE)
EC-XI.13	Marine science terminologies
EC-XI.14	Ninth session of the IOC Working Committee on International Oceanographic Data Exchange (IODE)
EC-XI.15	Proposed amendments to the Statutes
EC-XI.16	Activities of the United Nations in the field of Ocean Economics and Technology
EC-XI.17	Draft Programme and Budget for the 1981-1982 biennium

RESOLUTION EC-XI.1

Global Atmospheric Research Programme (GARP)

The Executive Council,

Recalling resolution X-5, in which Member States were requested to give priority to the urgent implementation of those elements relating to the First GARP Global Experiment (FGGE),

Further recalling WMO Executive Committee resolution 12 (EC-XXIX) fully approving execution of the FGGE programme,

Recognizing the importance of the oceanographic research carried out under GARP, particularly with regard to the study of global oceanic processes and their effects on climate,

Noting the contribution of the Member States in implementing the First GARP Global Experiment, particularly to its oceanographic programmes,

Further noting that it is essential to continue similar work on a permanent basis in key ocean regions, with a view to obtaining time-series data required for ocean-climate studies,

Recognizing the urgent need for close co-operation with WMO in the field of climate studies,

Invites Member States to respond favourably to specific proposals to continue such research;

Requests the Chairman of the Scientific Advisory Board (SAB) and the Chairman of the Joint Working Committee for IGOSS to study carefully all aspects of such proposals (document IOC/EC-X/21);

Instructs the Secretary to submit conclusions regarding these proposals to the Executive Council, as soon as possible.

No financial implications.

RESOLUTION EC-XI.2

Oceanographic Aspects of the First GARP Global Experiment (FGGE)

The Executive Council,

Recalling the many resolutions of the Executive Council and the Assembly including resolutions EC-VIII.2, IX-6, IX-7, X-5, EC-X.5 and EC-X.6, to encourage Member States to participate in various programmes of the First GARP Global Experiment,

Notes that this Global Experiment is presently under way, from 1 December 1978 to 30 November 1979, and that there are two Special Observing Periods, 5 January to 5 March, and 1 May to 30 June, during which much field activity is expected;

Further notes that the success of many of these oceanographic programmes during the FGGE, as discussed in "Oceanographic Aspects of the FGGE" (document IOC/INF-351), will depend on the co-participation and co-operation of all Member States;

Urges Member States to continue their co-operation with oceanographic aspects of the FGGE throughout the FGGE operational year, including:

(a) co-operation with ship operations both in performing oceanographic research in waters under national jurisdiction and in the use of their ports by foreign research vessels for on- and off-loading of equipment and personnel;

(b) facilitation of clearances for oceanographic and other FGGE-related equipment by their customs authorities;

(c) notification of the IOC or WMO Secretariats in the event that drifting buoys are found washed ashore on their coasts;

(d) continuation of support to the IGOSS BATHY/TESAC operational programme, particularly in the tropics and Southern Oceans; and

(e) participation in the IODE/RNODC-FOY effort by providing inventory information toward the Global Oceanographic Data Inventory and data toward the Global Ocean Climate Data Base;

Acknowledges the support of all Member States to the oceanographic aspects of the FGGE; and

Instructs the Secretary to follow the oceanographic research activities during the FGGE, and to report to the eleventh session of the Assembly on the progress that has been made.

No financial implications.

RESOLUTION EC-XI.3

GATE Oceanographic Atlas - Volume I

The Executive Council,

Recalling resolution X-16, "Compilation of the GATE Oceanographic Atlas",

Having studied the Progress Report on the Preparation of the GATE Oceanographic Atlas (document IOC/EC-XI/12) submitted by the Secretary,

Noting the proposal of the WMO Secretariat concerning financial support for the final production and binding of Volume I of the GATE Oceanographic Atlas,

Instructs the Secretary to consult with the WMO Secretariat and to negotiate sharing of costs for the publication of this Atlas;

Further instructs the Secretary to provide the agreed IOC share of these costs from the Regular Budget, supplemented from the IOC Trust Fund as necessary(1);

Invites Member States to contribute to the IOC Trust Fund for this purpose.

Financial implications.

RESOLUTION EC-XI.4

The IOC Association for the Caribbean and Adjacent Regions (IOCARIBE)

The Executive Council,

Noting that the IOC Association of the Caribbean and Adjacent Regions (IOCARIBE) held its second session in San José, Costa Rica, from 7 to 11 August 1978,

Approves the Executive Summary of the above session (document IOCARIBE-11/3S);

Expresses its appreciation to the Government of Costa Rica for acting as host country for the above session;

Taking note of the discussion of the report of the IOCARIBE Regional Secretary which reflects concern that certain geographic limitations contained in recommendations IOCARIBE-II.1 and 3 reduce the interest and potential programme benefits of Member States in the region outside the programmes' areas of implementation,

Recognizing that Member States in the region geographically removed from the programmes' areas of implementation may develop similar projects and would benefit from the co-ordination activities of these programmes,

Instructs the IOCARIBE Chairman, Vice-Chairman and Regional Secretary, in consultation with Member States and in conjunction with the scientific programme directors of the above IOCARIBE recommendations, to ensure that sufficient flexibility be incorporated in programme planning and development so that the Member States in the region which desire to undertake related local programmes shall benefit from the overall IOCARIBE programme co-ordination activities;

Noting also the concern regarding availability of data and information deriving from implementation of IOCARIBE programmes,

Instructs the IOCARIBE Regional Secretary to urge Member States to send in such data and information promptly to the IOCARIBE Regional Data Centre (RDC), for subsequent transmission to World Data Centres A and B;

Taking further note that the funds available to IOCARIBE are considerably less than those required for carrying out the mandates of the first and second sessions of the Association and that no programme priorities were established by IOCARIBE-II,

(1) Penultimate paragraph: atlas printing - total $22,000 (1980)
(IOC's share RP $6,000* (1980)
TF $5,000 (1980)

* Support foreseen in 1979/1980 Regular Programme Budget.

Requests the IOCARIBE Chairman, Vice-Chairman and Regional Secretary, in consultation with Member States, to establish logical programme priorities within the constraints of available funding;

Instructs the Regional Secretary, in co-operation with the Secretary of the Commission, to report to the IOC Assembly at its eleventh session on the preliminary results of the activities of the Association.

No financial implications.

RESOLUTION EC-XI.5

IOCARIBE Regional Secretariat Support

The Executive Council,

Taking into account that resolution IX-13 (and its Annex) and Annex IV of document IOCARIBE-I/3 provide for, and give, the terms of reference for the IOCARIBE Regional Secretariat, in order to ensure the effective development of the Association, the implementation of its mandates and the co-ordination of IOC activities in the region,

Noting that since the departure of the Associate Regional Secretary in September 1978, the Regional Secretary has been working alone,

Recognizing that the responsibilities and resulting work-load are excessive for the present one-man staff,

Further recognizing that this work-load will increase even more as IOCARIBE programmes become operational in the near future,

Endorses recommendation IOCARIBE-II.13 which calls for additional Assistant Regional Secretaries;

Urgently requests that IOCARIBE Member States immediately consider seconding at least one Assistant Regional Secretary to the IOCARIBE Secretariat.

No financial implications.

RESOLUTION EC-XI.6

IOC Trust Fund: Contribution of the Government of Venezuela

The Executive Council,

Pursuant to Rule of Procedure 55 of the Commission, which provides that the Assembly or the Executive Council may accept or reject any offer of a voluntary contribution for the Trust Fund, the expenditure of which has been restricted or designated for a specific purpose by the contributor,

Accepts with gratitude the contribution of US$50,000 made by the Government of Venezuela to be allocated to activities sponsored by the IOC Association for the Caribbean and adjacent regions (IOCARIBE) and to those related to Training, Education and Mutual Assistance in the marine sciences (TEMA, in the region;

Recalling the generous contributions and support received from time to time from the Governments of Costa Rica, Mexico, the Netherlands, Panama, Trinidad and Tobago and the United States of America,

Requests the Member States of IOCARIBE represented on the Executive Council to seek new contributions from their Governments to the Trust Fund to be earmarked for the implementation of research programmes in the area;

Authorizes the Secretary, pursuant to Rule 55 of the Rules of Procedure, to expend the aforementioned contribution for the specific purposes designated by the contributor;

Instructs the Secretary to inform the Executive Council or the Assembly at their future meetings of the use made of such funds.

No financial implications.

RESOLUTION EC-XI.7

Western Pacific (WESTPAC)

The Executive Council,

Having considered the Executive Summary of the first session of the Working Group for the Western Pacific, and its decisions (document IOC/WESTPAC-I/3S),

Expresses its appreciation to the Government of Japan for hosting the session;

Approves in principle the above Executive Summary, together with the 20 decisions attached thereto;

Instructs the Secretary to take action required to implement the various actions requested in the above decisions, subject to budgetary constraints;

Invites the Assembly at its eleventh session to consider the establishment of a regional secretariat for WESTPAC;

Approves also a meeting of the Task Team on Marine Pollution Research and Monitoring using commercially exploited shellfish as determinants, if the Chairman of the Task Team deems a meeting to be necessary but subject to a total attendance of eight members (1);

Invites FAO (and its IPFC) to participate fully in the work of the Task Team;

(1) Sixth paragraph: Task Team meeting RP $5,000* (1979)

* Not foreseen in the 1979/1980 Regular Programme Budget; necessary funding will be found at the expense of other activities.

Requests the Chairman of the Working Group for Western Pacific (WESTPAC), in co-operation with the Secretary, to prepare a summary of the programme for research in this region adopted by the Working Group (decision WESTPAC-I.6 refers) to the IOC Assembly at its eleventh session;

Invites SCOR to provide scientific advice on the broader proposals of the Physical Oceanography Sub-group of the WESTPAC Workshop, Tokyo, 19-20 February 1979 (reference IOC Workshop report No.16, Annex I).

Financial implications.

RESOLUTION EC-XI.8

The Phenomenon known as "El Niño"

The Executive Council,

Recalling resolution X-2 and its Annex,

Noting with satisfaction the results of the first session of the Joint IOC/WMO/CPPS Working Group on the Investigation of "El Niño" and of the third session of the Co-ordination Committee for the Estudio Regional del Fenómeno "El Niño" (ERFEN),

Approves in principle the Executive Summary of the first session of the above Joint Working Group and the recommendations attached thereto (document IOC-WMO-CPPS/EL NIÑO-I/35),

Expresses its appreciation to the Government of Peru for hosting the session,

Recognizing the support provided by WMO, CPPS and FAO to the study of "El Niño",

Considering that the regional and extra-regional activities being carried out by CPPS require continued support in order to contribute to the greater efficiency of ERFEN,

Bearing in mind the recommendations of the above Joint IOC/WMO/CPPS Working Group,

Urges WMO, CPPS, FAO and the Member States concerned with the Investigations of "El Niño" to continue and strengthen their support of ERFEN;

Requests the Secretary, in co-ordination with WMO, CPPS and FAO to take the necessary steps to develop the activities recommended by the Joint Working Group, in particular:

(a) support of regional and extra-regional activities entrusted to CPPS,

(b) preparation of the TEMA component for ERFEN,

(c) collection and dissemination of oceanographic and meteorological data and ERFEN products,

(d) participation of the Member States of ERFEN in the FGGE Operational Year,

(e) provision of support for the activities of the Scientific Committee of ERFEN, (1)

(f) convening the second session of the Joint Working Group; (2)

Requests the Joint Working Group on the Investigations of "El Niño" to continue data archiving and exchange after the FGGE Operational Year, taking into account that all data collected as a part of the Investigations of "El Niño" should be considered under the Declared National Programme (DNP) concept and exchange through the World Data Centre system. In this respect Member States of the Joint Working Group should also give consideration to utilizing the RNODC concept.

Financial implications.

RESOLUTION EC-XI.9

International Bathymetric Chart of the Mediterranean (IBCM)

The Executive Council,

Noting the importance of compiling a bathymetric chart of the Mediterranean as a concrete product of the CIM Programme,

Approves in principle the Executive Summary and recommendations of the fifth meeting of the ad hoc Group of Experts on the IBCM (document IOC/CIM/IBCM-V/3S);

Expresses its appreciation to the members of the above Group of Experts for their work;

Instructs the Secretary:

to set up an Editorial Board (under the direction of Dr. V. Faleev), with a mandate of two years and entrusted with the task of studying questions concerning preparation of the 1:1 million chart for publication; (3)

to set up temporary disciplinary groups (task teams) to produce overlay sheets in different fields (marine geology and geophysics, physics, chemistry, biology);

to encourage the Member States and organizations contributing to the programme, particularly the Operational Unit of CIM, to provide all the data necessary for producing these sheets;

to contact the Chairman of the Mediterranean and Black Sea Hydrographic Commission with a request that the appropriate Hydrographic Services maintain the 1:250,000 sheets and keep them updated, and that the Operational Unit co-operate closely with the International Hydrographic Organization in the collection and dissemination of bathymetric data.

Financial implications

(1)	Penultimate paragraph (e):	- translation of ERFEN bulletin	RP $2,000 (1980)
		- 3 oceanographers to SC/ERFEN	TF $2,000 (1980)
(2)	Penultimate paragraph (f):	- meeting	RP $11,000*
(3)	Last paragraphs, first part:	Board meeting experts	RP $4,000* (1979)

* Foreseen in 1979/1980 Regular Programme Budget

RESOLUTION EC-XI.10

Integrated Global Ocean Station System (IGOSS)

The Executive Council,

Recalling resolution X-22 and EC-X.11,

Recognizing the great importance of improving the acquisition of oceanic data for both operational and scientific uses, particularly for the further implementation of the IGOSS Data Processing and Services System (IDPSS) and for ocean-atmosphere climate studies,

Noting with satisfaction that the establishment of the Joint IOC/WMO Working Committee for IGOSS has facilitated joint efforts by Oceanographic and Meteorological Services,

Noting further:

(i) the successful implementation of the BATHY/TESAC Operational Programme of the IGOSS Observing System, and

(ii) SCOR's invitation to the Commission to participate in the planning of oceanographic investigations to further the understanding of climatic changes and variability,

Considering that IGOSS is intended to be the core of a long-term ocean monitoring system for the above studies,

Urges Member States to increase their contributions to IGOSS, particularly to the BATHY/TESAC Operational Programme and the IGOSS Data Processing and Services System;

Invites the Chairman of the Joint Working Committee for IGOSS to ensure that he is fully aware of all developments in international programmes related to ocean-atmosphere climate studies;

Requests the IOC and WMO Secretariats, in consultation with the Chairman of the Joint IOC/WMO Working Committee for IGOSS, to take all necessary steps for the rapid and efficient implementation of IGOSS.

No financial implications

RESOLUTION EC-XI.11

Joint IOC/WMO Working Committee for IGOSS

The Executive Council,

Having considered the Executive Summary of the first session of the Joint IOC/WMO Working Committee for IGOSS and its resolutions and recommentations (document IOC-WMO/IGOSS-I/3S),

Recalling resolutions IX-26 and X-22 and WMO resolutions 18 (Cg-VII) and 8 (EC-XXIX) relating to the joint co-operation on IGOSS between IOC and WMO,

Noting with appreciation the essential support that WMO has continually provided toward the development of IGOSS,

Recalling also resolutions VII-27, VIII-20 and IX-27, relating to the IGOSS Marine Pollution (Petroleum) Monitoring Pilot Project (MAPMOPP),

Recognizing that the IGOSS programme will continue to require WMO support particularly on those IGOSS matters which are closely associated with WMO programmes, such as the World Weather Watch, the World Climate Programme, and WMO environmental pollution programmes;

Approves in principle the above Executive Summary, together with the eight resolutions attached thereto;

Decides to take action on the recommendations, subject to their approval by WMO, as follows:

Recommendation JWC-IGOSS-I.1 - Marine Pollution Monitoring

(a) Approves the recommendation;

(b) Requests the Working Committee for GIPME to ensure representation in the final evaluation of the MAPMOPP and in the preparation of the operational programme of marine pollution monitoring (MARPOLMON), as indicated in this recommendation and in resolution JWC-IGOSS-I.3, and in particular

(i) to prepare an evaluation of the scientific results of MAPMOPP,

(ii) to present an assessment of the feasibility and desirability of monitoring pollutants other than oil to the Third Workshop on Marine Pollution Monitoring;

(c) Requests the Working Committee on IODE to provide an evaluation of the data handling and management during the Pilot Project and to recommend other considerations for effective data management during the operational programme for MARPOLMON;

(d) Instructs the Secretary, jointly with WMO, to explore the ways to continue funding the MARPOLMON activities, particularly its TEMA components;

(e) Urges the United Nations Environment Programme to give favourable consideration to the request of the Secretary IOC for support of actions required for completion of MAPMOPP;

(f) Urges Member States to submit all available MAPMOPP data to the designated RNODCs, to be used for evaluation of MAPMOPP.

Recommendation JWC-IGOSS-I.2 - National Representatives for IGOSS

(a) Approves the recommendation;

(b) Recognizing that each National Representative for IGOSS will act as the permanent focal point in his Member State and will maintain contact with all competent authorities of his own country on IGOSS matters,

(c) Recognizing also that such an arrangement would promote closer co-operation between national oceanographic and meteorological services,

(d) Instructs the Secretary, in consultation with the Secretariat of WMO, to request Member States of IOC to designate National Representatives for IGOSS to deal with the tasks outlined in the recommendation;

(e) Also instructs the Secretary, in consultation with the WMO Secretariat and the National Representatives for IGOSS, to consider further simplification of the present channels for distribution of IGOSS Circular Letters, documents and publications.

Recommendation JWC-IGOSS-I.3 - Proposed changes to the terms of reference of the Joint IOC/WMO Working Committee for IGOSS

(a) Approves the recommendation;

(b) Instructs the Secretary to add the proposed changes to the terms of reference of the Joint IOC/WMO Working Committee for IGOSS approved by resolution X-22, and to include them in appropriate IOC documents.

Recommendation JWC-IGOSS-I.4 - Training course in marine pollution monitoring in the Indian Ocean

(a) Notes the recommendation; and

(b) Instructs the Secretary, in consultation with WMO and the Unesco Division of Marine Sciences, to seek funds to support a training course in the Indian Ocean region, and to start the preparations for the course as soon as practicable.

No financial implications

RESOLUTION EC-XI.12

Continuation of Drifting Buoy Observations within IGOSS after the First GARP Global Experiment (FGGE)

The Executive Council,

Recalling:

(i) resolution EC-X.11, which instructed the Secretary IOC and the Chairman of the Joint IOC/WMO Working Committee for IGOSS to prepare concrete recommendations on the continuation of observations by means of anchored and drifting buoys on a permanent basis following the completion of FGGE, and

(ii) that the Commission has supported the development of international drifting buoy systems by organizing the first planning meeting for the FGGE Southern Hemisphere Drifting Buoy System, and promoting various aspects of the implementation of the system, including the identification of deployment vessels,

Acknowledges that drifting buoy technology is of great potential importance to the oceanographic research and services programmes of the Commission, as well as meteorological programmes of WMO;

Noting that the continuation of the drifting buoy observations on a permanent basis following completion of the FGGE, would concern two groupings of drifting buoys:

(i) those FGGE drifting buoys still in operation after 30 November 1979, and

(ii) drifting buoys to be used in future national and international programmes, both for research and on an operational basis,

Decides that a Joint IOC/WMO co-ordinating mechanism for drifting buoy initiatives should be established within IGOSS at an early date;

Requests the Joint IOC/WMO Working Committee for IGOSS to undertake the establishment of a drifting buoy co-ordination mechanism, as a high priority action;(1)

Also requests the JWC/IGOSS to invite representatives from appropriate WMO and IOC subsidiary bodies (e.g. JWG/EL NIÑO, CBS, etc.) to participate in the co-ordination mechanism.

Financial implications

RESOLUTION EC-XI.13

Marine Science Terminologies

The Executive Council,

Recalling resolution IX-32 by which the Secretary IOC was requested to prepare a report on the current status of marine science terminologies as well as a proposal for the development of a multilingual work,

Noting with appreciation the study undertaken by the Secretariat with the help of a consultant on this subject,

Having considered proposals made by the Working Committee on International Oceanographic Data Exchange at its ninth session, in response to the request of the Executive Council at its eighth session,

Noting also the work undertaken by FAO and IOC, with UNEP assistance, on the development of a thesaurus of terms used for indexing and retrieval of literature in Aquatic Science and Fisheries,

Requests the Secretary to arrange for the compilation of a bibliography of the existing marine science glossaries in all languages, and to distribute it to Member States;(2)

(1) Last paragraph: subsidiary body representatives' travel: RP* $4,000 (1980)
(2) Fifth paragraph: updating only!: RP**$2,000 (1980)

* not foreseen in 1979/1980 Regular Programme Budget
** foreseen in 1979/1980 Regular Programme Budget

Further requests the Secretary to arrange translation of the enlarged ASFIS thesaurus to meet Member States needs, as expressed in resolution IX-32;(1)

Invites Member States to assist the Secretariat in translating the ASFIS thesaurus.

Financial implications

RESOLUTION EC-XI.14

Ninth session of the IOC Working Committee on IODE

The Executive Council,

Having considered the Executive Summary of the ninth session of the IOC Working Committee on IODE and its resolutions and recommendations, as well as the report "Status of international oceanographic data exchange" (document IOC/EC-XI/14), submitted in response to resolution EC-X.13,

Recalling resolutions IX-28, IX-30, IX-31, EC-VII.12, X-7, EC-X.13, and the conclusions of the tenth session of the IOC Assembly related to the results of the eighth session of the Working Committee on IODE and its intersessional activities,

Recalling also resolutions X-5 and EC-X.6 related to the oceanographic programme for the First GARP Global Experiment (FGGE),

Noting the resolution of the twentieth session of the Unesco General Conference which, inter alia, calls upon Member States ... "to strengthen and develop the existing system for exchanging oceanographic data, using the facilities offered by World Data Centres",

Noting with satisfaction the progress achieved by the Working Committee on IODE since its eighth session in 1975 and the further strengthening of its co-operation with other programmes of IOC and international organizations,

Recognizing that efficient international exchange of oceanographic data is the prerequisite for success of any research or monitoring programme and that the system and procedures developed by WC/IODE should be used by all IOC bodies and international organizations involved in the study of the world oceans,

Viewing with concern tendencies, in certain programmes related to marine pollution monitoring, particularly those co-ordinated by UNEP, which might lead to the creation of independent systems for collection of data,

Notes resolutions IODE-IX.1-6;

Decides to take action on the recommendations of WC/IODE, as follows:

(1) Penultimate paragraph: translation RP* $12,000 (1980)
publication RP* $15,000 (1980)

* not foreseen in 1979/1980 Regular Programme Budget, but partial funding by co-operating agencies under discussion.

Recommendation IODE-IX.1 - Participation of International Organizations in the IODE System

(a) Approves the recommendation;

(b) Urges all international organizations involved in studying the world's oceans to use existing systems and procedures for international oceanographic data exchange co-ordinated by WC/IODE;

(c) Instructs the Secretary IOC to bring this subject to the attention of the ICSPRO Agencies at the forthcoming meeting of ICSPRO.

Recommendation IODE-IX.2 - Marine Environmental Data Availability

(a) Approves the recommendation;

(b) Recalling the outcome of discussions at IOC-X in relation to data management activities within MEDPOL,

Urges UNEP and other organizations involved in marine pollution research and monitoring programmes to use, to the maximum extent possible, the principles, system and procedures for international exchange of oceanographic data as contained in the Manual on International Oceanographic Data Exchange.

Recommendation IODE-IX.3 - Co-operation with WMO on Marine Environmental Data Management

(a) Recalling resolution VIII-22 by which the Joint IOC/WMO ad hoc Working Group on Air-Sea Interaction Data was established,

Approves the recommendation;

(b) Decides, subject to the approval of WMO, to disband the Joint IOC/WMO ad hoc Group on Air-Sea Interaction Data;

(c) Instructs the Secretary, in consultation with the Chairman WC/IODE, to consult WMO on the holding of an informal planning meeting to discuss co-ordination of IOC and WMO activities in the field of marine environmental data management and future mechanisms required for such co-operation.

Recommendation IODE-IX.4 - Oceanographic Data Management during the FGGE Operational Year (FOY)

(a) Approves the recommendation;

(b) Urges Member States to encourage full and timely submission by scientists of data and documentation to the RNODC-FOY for:

(i) subsequent submission to the WDCs;

(ii) inclusion in the global ocean data inventory; and

(iii) inclusion in the global ocean climate data base.

Recommendation IODE-IX.5 - Exchange of Airborne and Satellite Remotely Sensed Data

(a) Approves the recommendation;

(b) Instructs the Working Committee on IODE to collaborate with the WMO and its subsidiary bodies which deal with environmental satellites and remotely sensed data.

Recommendation IODE-IX.6 - IOC General Format for Exchange of Oceanographic Data

(a) Approves the recommendation;

(b) Approves also the establishment of a small Group of Experts on Format Development;(1)

(c) Urges Member States to utilize the IOC General Format (GF-3) as the standard format for exchange of oceanographic data.

Recommendation IODE-IX.7 - Aquatic Sciences and Fisheries Information System (ASFIS)

(a) Recalling resolution IX-31,

Noting resolution IODE-IX.4 on Marine Information Management,

Approves the recommendation;

(b) Instructs the Secretary, in consultation with the FAO Secretariat and the Chairman of the Joint FAO/IOC Panel of Experts on ASFIS, to prepare proposals for the eleventh session of the Assembly, on the ways and means to strengthen the activities and role of IOC as a joint co-sponsor of ASFIS;

Recommendation IODE-IX.8 - Marine Environment Data Information Referral System (MEDI)

(a) Recalling resolution IX-30,

Approves the recommendation;

(b) Urges international organizations participating in MEDI to elevate the level of their contribution to the system initially by providing the Secretariat with completed MEDI input forms;

(c) Instructs the Secretary to prepare a report for the eleventh session of the Assembly on progress achieved in MEDI development and on ways and means to ensure implementation of MEDI operational functions by the Commission in the future.

Recommendation IODE-IX.9 - Declared National Programmes (DNPs)/ National Oceanographic Programmes (NOPs)

(a) Approves the recommendation;

(b) Urges Member States to submit information on DNPs/NOPs on a more regular basis;

(c) Instructs the Secretary to arrange preparation of annual reports on submission of DNPs/NOPs, for distribution to Member States.

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(1) Recommendation IODE-IX.6 b: experts group meeting: RP* $6,000 (1980)

* Not foreseen in 1979/1980 Regular Programme Budget

Recommendation IODE-IX.10 - Assistance to Enable Participation of Developing Countries in the IODE Programme

(a) Approves the recommendation;

(b) Instructs the Secretary to bring this recommendation to the attention of the WC/TEMA and to provide support as necessary for participation of the TEMA Co-ordinator for IODE, in the activities of WC/TEMA;

Financial implications

RESOLUTION EC-XI.15

Proposed Amendments to the Statutes

The Executive Council,

Having studied the recommendations of the Working Group on the Future Role and Functions of the Commission (document IOC/EC-XI/21), section 1.3 "Possible need to revise the IOC Statutes",

Pursuant to Rule of Procedure No. 56, paragraph 2,

Recommends to the Assembly at its eleventh session that the following proposed amendments to the Statutes of the Commission be adopted:

Article 1, paragraph 1, amend to read "The Intergovernmental Oceanographic Commission, hereinafter called the Commission, is established as a body with functional autonomy within the framework of the United Nations Educational, Scientific and Cultural Organization, hereinafter called Unesco".

Article 2, Add new subparagraphs as follows:

"(j) promote, plan and co-ordinate research programmes, monitoring systems and assessment studies on the quality of the marine environment and thereby contribute to the management and protection of the marine environment in collaboration with Member States and the appropriate international organizations;

(k) undertake, directly or in co-operation with other international organizations, as appropriate, any other action compatible with its purpose and functions concerning the ocean, its floor and subsoil, and its interactions with the atmosphere and the land masses, as may be decided by its Member States."

Invites the Assembly to submit the above proposed amendments to the IOC Statutes to the Unesco General Conference at its twenty-first session, with a request that appropriate action be taken in accordance with Article 13 of the IOC Statutes;

Recommends strongly that this submission be accompanied by a document giving a detailed explanation of what is meant by the phrase "a body with functional autonomy within the framework of Unesco" and a brief explanation of the reason for the amendment proposed to Article 2 of the Statutes;

Instructs the Secretary to prepare such a document at an early date, obtaining the agreement of the Director-General of Unesco and the Chairman of the Commission thereto before the text is finalized, and to submit this document to the Assembly as an Information Document.

No financial implications

RESOLUTION EC-XI.16

Activities of the United Nations in the field of Ocean Economics and Technology

The Executive Council,

Recalling resolutions X-25 entitled "The Future Role and Functions of the Commission" and X-26 entitled "Further Development and Improvement in the Status and Working Methods of the Commission",

Bearing in mind the importance of the question of the future role and functions of the Commission,

Having examined the report of the Working Group on the Future Role and Functions of the Commission established under resolution X-25 (document IOC/EC-XI/21),

Taking note of the participation of the ICSPRO agencies in the activities of the Working Group and the integral role of the ICSPRO agencies in the implementation of such measures as may be decided regarding the future role and functions of the Commission,

Noting in particular that certain courses of action under consideration involve the establishment of closer links with, inter alia, the United Nations and its Ocean Economics and Technology Office,

Considers that it would be useful for the Assembly at its eleventh session to be apprised of the activities of the United Nations in the field of Ocean Economics and Technology, in order to take account of such activities in adopting appropriate measures regarding the future role and functions of the Commission;

Requests the Chairman to consult with the Secretary-General of the United Nations with a view to the submission by the Ocean Economics and Technology Office of a concise report to the Assembly at its eleventh session, which report would review the ongoing and planned activities of the United Nations in the field of Ocean Economics and Technology, identifying where appropriate the interrelationships between such activities and those of the Commission.

No financial implications

RESOLUTION EC-XI.17

Draft Programme amd Budget for the 1981/1982 Biennium

The Executive Council,

Having considered the Draft Programme and Budget for the 1981/1982 biennium, prepared by the planning team formed by the Chairman in accordance with resolution X-27,

Expresses its satisfaction with the procedure adopted, since this is a positive step forward in this area, which should be continued in a systematic way in the future;

Bearing in mind that Member States have the right to present additional remarks and proposals on the above Draft Programme and Budget, to the eleventh session of the Assembly,

Endorses in principle the Draft Programme and Budget for 1981/1982 as contained in document IOC/BUPLAN-I/2 rev.3, with the proviso that before the eleventh session of the Assembly, priorities be defined by the First Vice-Chairman in consultation with the Secretary; and

Instructs the Secretary to forward to the Assembly document IOC/BUPLAN-I/2 rev. 4, with the priorities mentioned above included, for further consideration and approval.

No financial implications

The Intergovernmental Oceanographic Commission consists of an Assembly, an Executive Council, a Secretariat and such subsidiary bodies as it may establish.

(Statutes, Article 4.4)

The Assembly, which is the principal organ of the Commission, is responsible for making all decisions necessary to accomplish the purpose of the Commission. Sessions of the Assembly are held every two years and may by right be attended by delegates from all Member States of the Commission.

The Executive Council, which meets at approximately eight-monthly intervals, is required to exercise the responsibilities delegated to it by the Assembly and act on its behalf in the implementation of its decisions. The Executive Council consists of the Chairman of the Commission, the four Vice-Chairmen and representatives from a number of Member States elected at the end of the previous session of the Assembly.

The Secretariat, which is housed in Unesco Headquarters, Paris, consists of the Secretary, the Deputy Secretary and a number of Assistant Secretaries/Programme Specialists. Certain of the Assistant Secretaries are seconded to the Secretariat by Specialized Agencies of the United Nations system (other than Unesco) participating in the Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO).

The Subsidiary Bodies of the Commission consist of a Regional Association, Working Committees, Programme Groups, Groups of Experts and other ad hoc bodies. Certain of these are jointly sponsored with other global and regional intergovernmental bodies.

At 3 November 1979, there were 103 Member States of the Commission, as listed in Annex IV to this Report.